SONY

3-865-265-11 (2)

# Multiscan Projector

**Operating Instructions**

## VPH-G90E
## VPH-G90M
## VPH-G90U

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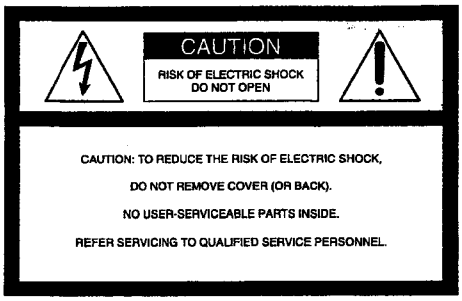
# WARNING

**To prevent fire or shock hazard, do not expose the unit to rain or moisture.**

**To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.**


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

**For the customers in the USA**

**Note**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

**Warning**

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

**For the customers in Canada**

This Class A digital apparatus complies with Canadian ICES-003.

**For the customers in the United Kingdom**

**WARNING**

**THIS APPARATUS MUST BE EARTHED**

**IMPORTANT**

This wires in this mains lead are coloured in accordance with the following code:

| | |
|---|---|
| Green-and-Yellow: | Earth |
| Blue: | Neutral |
| Brown: | Live |

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:
The wire which is coloured green-and-yellow must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol Y or coloured green or green-and-yellow.
The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.
The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

**Voor de klanten in Nederland**

- Dit apparaat bevat een Li-ion batterij voor memory back-up.
- De batterij voor memory back-up van het geheugen is bevestigd op IC333 van plaat YA.
- Raadpleeg uw leverancier over de verwijdering van de batterij op het moment dat u het apparaat bij einde levensduur afdankt.
- Gooi de batterij niet weg, maar lever hem in als KCA.
- Bij dit produkt zijn batterijen geleverd. Wanneer deze leeg zijn, moet u ze niet weggooien maar inleveren als KCA.

The socket-outlet should be installed near the equipment and be easily accessible.

# AVERTISSEMENT

**Afin d'éviter tout risque d'incendie et d'électrocution, ne pas exposer l'appareil à la pluie ou à l'humidité.**

**Pour éviter tout risque de décharge électrique, ne pas ouvrir le boîtier. Confiez l'entretien uniquement à un personnel qualifié.**

**Pour les utilisateurs au Canada**
Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

La prise doit être près de l'appareil et facile d'accès.

# ACHTUNG

**Um Feuergefahr und die Gefahr eines elektrischen Schlages zu vermeiden, darf das Gerät weder Regen noch Feuchtigkeit ausgesetzt werden.**

**Im Geräteinneren befinden sich Teile, die unter gefährlich hoher Spannung stehen. Das Gehäuse darf nicht geöffnet werden. Überlassen Sie die Wartung nur geschultem Fachpersonal.**

**Für Kunden in Deutschland**
Dieses Produkt kann im kommerziellen und in begrenztem Maße auch im industriellen Bereich eingesetzt werden. Dies ist eine Einrichtung, welche die Funk-Entstörung nach Klasse B besitzt.

Die Steckdose muß nahe bei diesem Gerät angebracht und leicht zugänglich sein.

# ADVERTENCIA

**Para prevenir el riesgo de incendios o de electrocución, no exponga la unidad a la lluvia ni a la humedad.**

**Para evitar descargas eléctricas, no abra la unidad. En caso de avería, solicite el servicio de personal cualificado únicamente.**

# ATTENZIONE

**Per evitare il pericolo di incendi o scosse elettriche, non esporre l'apparecchio alla pioggia o all'umidità e non aprirlo.**

**Per eventuali riparazioni, rivolgersi esclusivamente a personale qualificato.**

# STAATL. GEWERBEAUFSICHTSAMT STUTTGART

*Zentrale Stelle für die Vollzugsunterstützung (ZSV)*

Sony International (Europe) GmbH
Stuttgart Technology Center
Stuttgarter Straße 106

70736 Fellbach

Stuttgart, den 13.07.1998
Durchwahl: 1869-638
Aktenzeichen: ZSV 4677.21 Bm
Bearbeiter: Herr Böhm

## Zulassungsschein Nr. BW/505/98/Rö

Gemäß § 10 der Röntgenverordnung vom 08.01.1987 (BGBl. I S. 114) wird die Zulassung der Bauart durch den Bauartzulassungsbescheid vom 13.07.1998 für den nachfolgend aufgeführten Störstrahler bescheinigt:

| | |
|---|---|
| Gegenstand | : Multiscan Projector |
| Firmenbezeichnung | : Sony Typ VPH-G90. |
| Projektionsröhren | : Hersteller: Panasonic<br>Type: P19LQF60RJA<br>P19LQF65HKA<br>P19LQF60BMB |
| Betriebsbedingungen | : Hochspannung max. 33,3 kV<br>Strahlstrom 3,6 mA |
| Hersteller (Produktionsstätte) | : 1. Sony INY<br>Quality Control Department<br>Ichinomiya, Aiti-Prefecture, Japan<br>2. SDCP-DSM (Display System Manufacturing)<br>Quality Assurance Department<br>San Diego, California, USA |
| Befristung | : bis 13.07.2008 |

STAATL. GEWERBEAUFSICHTSAMT STUTTGART

Für den Strahlenschutz wesentliche Merkmale:

1. Die Art und Qualität der Projektionsröhren,
2. die der Hochspannungserzeugung und -stabilisierung dienenden Bauelemente.

Kronenstr. 39, 70174 Stuttgart Postfach 101743, 70015 Stuttgart Telefon 0711/1869-0 Telefax 0711/1869-630

Blatt 2 zum Bescheid vom 13.07.1998
**Zulassungsschein - Kennzeichen: BW/505/98/Rö**

Auflagen:

1. Die Multiscan Projectoren sind einer Stückprüfung daraufhin zu unterziehen, ob sie bezüglich der für den Strahlenschutz wesentlichen Merkmale der Bauartzulassung entsprechen.

   Die Prüfung muß umfassen:

   a) Kontrolle der Hochspannung an jedem einzelnen Gerät,

   b) Messung der Dosisleistung nach Festlegung im Bauartzulassungsbescheid.

2. Jedem Erwerber eines Multiscan Projectors ist ein Abdruck des Zulassungsscheins auszuhändigen, auf dem das Ergebnis der Stückprüfung (Maßgabe 1) bestätigt und die Herstellernummer angegeben sein muß.

3. Die Multiscan Projectoren sind deutlich sichtbar und dauerhaft mit dem Kennzeichen

   BW/505/98/Rö

   zu versehen, sowie mit einem Hinweis folgenden Mindestinhaltes:

   "Die in diesem Gerät entstehende Röntgenstrahlung ist ausreichend abgeschirmt.
   Beschleunigungsspannung maximal 33,3 kV".

4. Jedem Multiscan Projector ist eine Betriebsanleitung beizufügen, in der insbesondere auf die dem Strahlenschutz dienenden Maßnahmen hingewiesen wird.

Hinweis für den Benutzer des Gerätes:

Unsachgemäße Eingriffe, insbesondere verändern der Hochspannung oder Auswechseln der Bildröhren können dazu führen, daß Röntgenstrahlung in erheblicher Stärke auftritt. Ein so veränderter Multiscan Projector entspricht nicht mehr dieser Zulassung und darf infolgedessen nicht mehr betrieben werden.
Die vor Ablauf der Frist in Verkehr gebrachten Geräte dürfen nach Ablauf der Frist weiter betrieben werden.

B ö h m

STAATL. GEWERBEAUFSICHTSAMT STUTTGART

Die geforderte Stückprüfung hat ergeben, daß die gemessene Ortsdosis-Leistung unter dem im Prüfungsschein Nr. 6.52-S 1259 der PTB genannten Wert von 0,2 µSv/h liegt.

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# Overview

## Precautions

### On safety

- Check that the operating voltage of your unit is identical with the voltage of your local power supply. If voltage adaptation is required, consult with qualified Sony personnel.
- Should any liquid or solid object fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it further.
- Unplug the unit from the wall outlet or set the MAIN POWER switch to OFF if it is not to be used for several days.
- To disconnect the cord, pull it out by the plug. Never pull the cord itself.
- The wall outlet should be near the unit and easily accessible.
- The unit is not disconnected from the AC power source (mains) as long as it is connected to the wall outlet, even if the unit itself has been turned off.

### On installation

- When the projector is mounted on the ceiling, the Sony PSS-90 Projector Suspension Support must be used for installation. Read the installation manual of the PSS-90 carefully, since the ceiling should be reinforced for safety.
- Allow adequate air circulation to prevent internal heat build-up. Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation holes. Leave space of more than 30 cm (12 inches) between the wall and the projector. Be aware that room heat rises to the ceiling; check that the temperature near the installation location is not excessive.
- Do not install the unit in a location near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust or humidity, mechanical vibration or shock.

- To avoid moisture condensation, do not install the unit in a location where the temperature may rise rapidly.
- Fans are installed inside the projector to prevent internal heat build-up. The fans produce a humming noise when the power is switched on, which is normal. Should the noise sound abnormal, please consult qualified Sony personnel.

## On illumination

- To obtain the best picture, the front of the screen should not be exposed to direct lighting or sunlight.
- Ceiling-mounted spot lighting is recommended. Use a cover over fluorescent lamps to avoid lowering the contrast ratio.
- Cover any windows that face the screen with opaque draperies.
- It is desirable to install the projector in a room where floor and walls are not of light-reflecting material. If the floor and walls are of reflecting material, it is recommended that the carpet and wall paper be changed to a dark color.

## On operation

To turn on the projector after the projector has been turned off due to a brief loss of power, press the ON key on the remote commander, or turn off the MAIN POWER switch so that the STANDBY indicator turns off and then turn on the MAIN POWER switch.

## On cleaning

- To keep the cabinet looking new, periodically clean it with a soft cloth. Stubborn stains may be removed with a cloth lightly dampened with a mild detergent solution. Never use strong solvents, such as thinner, benzene, or abrasive cleansers, since these will damage the cabinet.
- Avoid touching the lens. To remove dust on the lens, use a soft dry cloth. Do not use a damp cloth, detergent solution, or thinner.

# Precautions



## CRT burns

When a static picture of a computer, etc. is displayed for more than about an hour, a CRT burn may result. This means that an after-image impression of the static picture remains on the screen even after the picture has changed. If it is necessary to display the same static picture for more than an hour, we recommend that you set the CONTR (contrast) control to the lowest setting.
Also, when a picture of different size is displayed beyond a certain length of time, an after-image impression of the frame of the smaller picture may be burnt on the screen (such as displaying a 16:9 wide size picture on a 4:3 screen). To avoid this, we recommend that you use the same picture size when possible. However, if it is necessary to use a different picture size, set the CONTR (contrast) control and the BRT (brightness) control of the smaller picture to the lowest setting possible. This will minimize the risk of creating an after-image impression.
If the CRT burns, it must be replaced. In this case, refer to the warranty provided with this unit. Consult your Sony dealer or Qualified Service Personnel.

## On repacking

Save the original shipping carton and packing material; they will come in handy if you ever have to ship your unit. For maximum protection, repack your unit as it was originally packed at the factory.

# Features



## Multiscan projector [1)]

This projector accepts and automatically detects horizontal scanning frequencies between 15 kHz and 150 kHz and vertical scanning frequencies between 38 Hz and 150 Hz.
In addition to high-resolution pictures from computers, you can also project pictures from teletext decoders, VCRs and video cameras.

## High resolution and brightness

A newly developed 9-inch electromagnetic focus CRT, a hybrid Sony HACC (High-resolution Aspherical and Color Corrected) lens and a wide-range cathode/G1 dual-drive video output circuit are incorporated in the projector to provide a sharp and bright high-quality picture with the high resolution of 2500 × 2000 pixels and the high light output of 350 lumen.

## High contrast

The adoption of the optical coupling technologies, double-focus lens system and an anti-reflection coating gives a fine-detail and sharp picture with improved contrast in corners and screen center.

## Easy operation—remote control, on-screen display

Adjustments such as input selection, picture control and centering adjustment can be remotely controlled from both the front and rear of the projector with the supplied remote commander. You can also use the commander as a wired remote control by connecting it to the projector with the supplied remote control cable.

## Compatible with various color systems [1)]

NTSC, PAL, SECAM, $NTSC_{4.43}$ [2)] or PAL-M color system can be selected automatically or manually.

1) The VPH-G90E model is not equipped with the VIDEO connectors.
To connect video signals, the optional IFB-G90E Video Interface Board is required.

2) $NTSC_{4.43}$ is the color system used when playing back a video recorded on NTSC on a $NTSC_{4.43}$ system VCR.

# Features



## Flexible setup

You can project a 90- to 300-inch picture (120-inch standard) with this projector. The projector can be set up on the floor or ceiling, for front or rear projection to suit the installation location, surrounding illumination, usage, etc.

## Illuminated control panel/remote commander keys

The key names on the remote commander and the control panel of the projector can be illuminated for easy access in a dark place by pressing the LIGHT button.

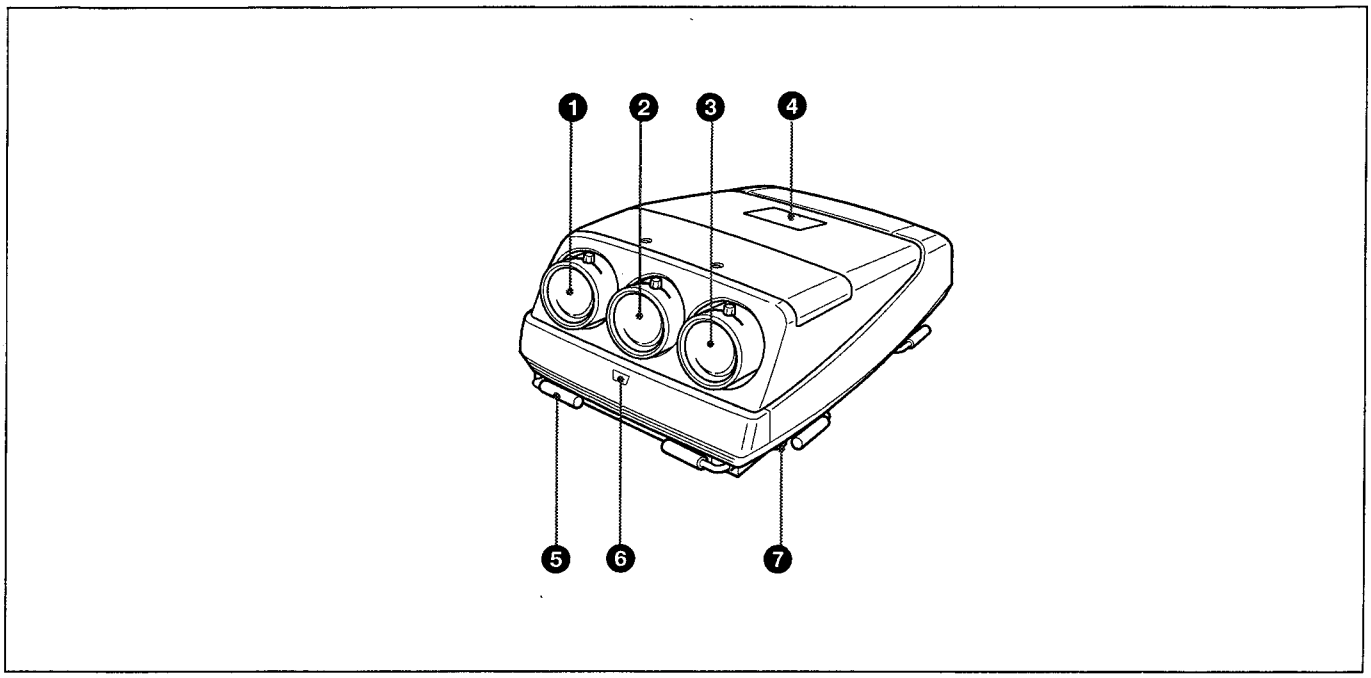
## DRC (Digital Reality Creation) circuit[1)]

The DRC is Sony's unique double-scan technology which creates a 4-times density image from the NTSC signal. A normal NTSC signal (525 scanning lines) is converted into a high density signal (1050 scanning lines) using digital mapping tecnology. Compared with the conventional double-scan, the DRC creates a highly realistic moving picture without blurs.

1) The VPH-G90E model is not equipped with the VIDEO connectors.
To connect video signals, the optional IFB-G90E Video Interface Board is required.

# Location and Function of Controls

## Front




**1 Blue lens**

**2 Green lens**

**3 Red lens**

**4 Control panel cover**
The control keys are inside the cover.
The locations and functions of the control keys are the same as those of the remote commander.

*For details, see "Remote Commander/Control Panel" on page 17.*

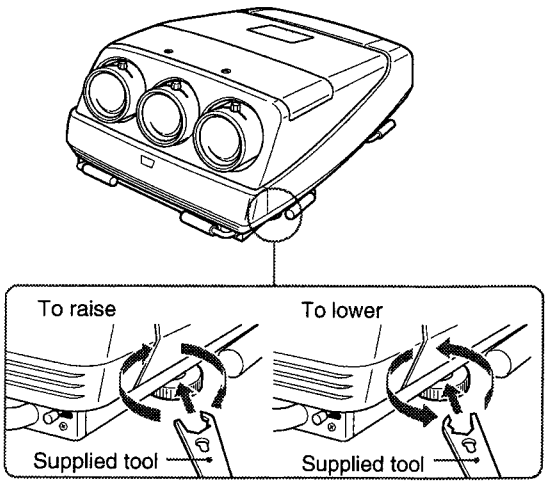
**5 Handles**
Used for carrying the projector. The handles are located on the front, rear, left and right sides.

**6 Front remote control detector**

**7 Adjusters**
Used to keep the projector level if it is installed on an uneven surface (equipped with four adjusters).

### How to use the adjusters

Using the supplied tool, turn the adjusters to adjust the height so that the projector becomes level.

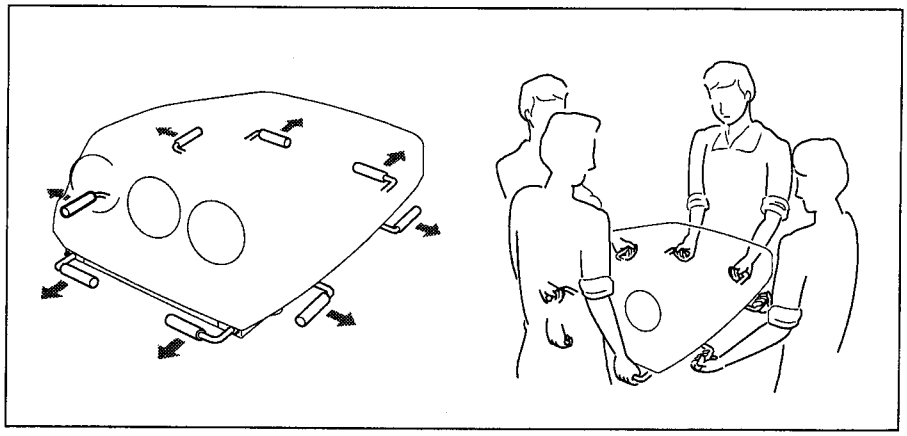



**Notes**

- The supplied tool can rotate the screw in one direction only. To rotate the screw in the reverse direction, turn the tool upside down.
- Do not turn the tool forcibly when the screw has fully rotated. Otherwise, the tool may slip out and injure your hand.

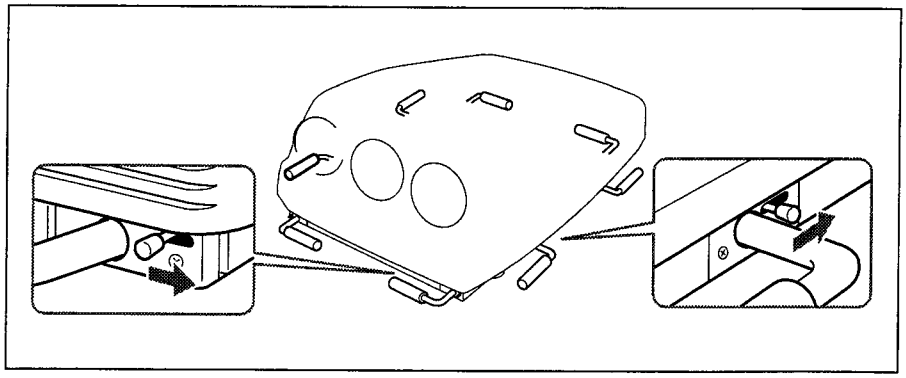
## Using the handles

Carry the projector **with four persons or more** by using the front, rear and side (right and left) handles.
Pull out the front and rear handles or the side handles.

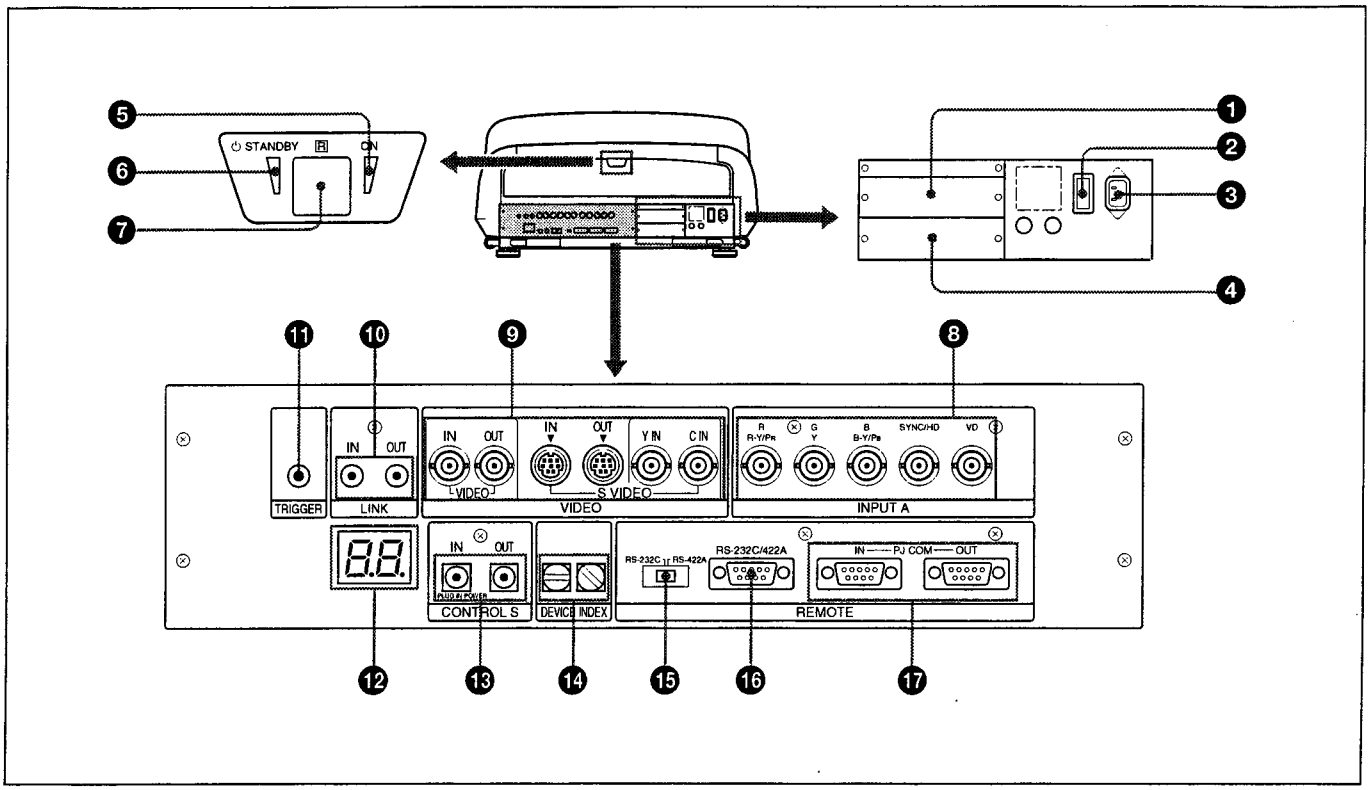


## Putting away the handles

Push the handle release lever under each handle. The handle is automatically retracted.



## Rear




**❶ Signal interface board attachment part (INPUT B)**
An optional signal interface board such as IFB-12/12A and IFB-40 can be attached to this section.
When the IFB-12/12A is attached, the signal input to the INPUT A connectors can be output from the IFB-12/12A by setting it to output mode.

**❷ MAIN POWER switch**

**❸ AC IN socket**
Connect the supplied AC power cord.

**❹ Signal interface board attachment part (INPUT C)**
An optional signal interface board can be attached to this section.

**Notes**

- The IFB-40 cannot be attached to INPUT C.
- When the IFB-12/12A is attached, the IFB-12/12A cannot be set to output mode.

**❺ ON indicator**
When the projector is turned on, this indicator lights in green.

**❻ ⏻ STANDBY indicator**
When the MAIN POWER switch on the projector is turned ON, this indicator lights in orange, indicating that the projector can be turned on/off using the remote commander.

**❼ Rear remote control detector**

**❽ INPUT A connectors (BNC type)**
**R/R-Y/$P_R$, G/Y, B/B-Y/$P_B$, SYNC/HD, VD connectors:** Connect to the outputs of a computer or a video camera. According to the connected equipment, the RGB (R, G, B), component (R-Y, Y, B-Y) or HDTV ($P_R$, Y, $P_B$) signal is selected.

**❾ VIDEO connectors***

**VIDEO IN connector (BNC type):** Connects to the composite video output of the video equipment.

**VIDEO OUT connector (BNC type):** Connects to the composite video input of a color monitor.

**S VIDEO IN/OUT connectors (4-pin, mini-DIN type):** Connects to the S video output or input of the video equipment.

**Y IN, C IN connectors (BNC type):** Connects to the Y and C video outputs of the video equipment.

**Note**

The S VIDEO IN connector is disconnected when a cable is connected to the Y IN/C IN connectors.

*** Note on the VPH-G90E model**

The optional IFB-G90E Video Interface Board is required for using the VIDEO connectors.

**❿ LINK IN/OUT jacks (stereo minijack)**

When connecting multiple projectors, connect the LINK OUT jack to the LINK IN jack on another projector. Then the ABL LINK function can be used.

**⓫ TRIGGER connector (minijack)**

When the projector is turned on, 12 V is output. When it is turned off, 0 V is output. However, the connector cannot be used as the power source.

**⓬ LED display window**

Self-diagnosis results and PJ COM communication conditions, etc. are displayed using two-digit numbers and alphabets.

Self-diagnosis codes are displayed in red or orange, and the warning and communication conditions in green.

**⓭ CONTROL S jacks**

**IN/PLUG IN POWER jack (stereo minijack):** Connects to the CONTROL S OUT jack of other Sony equipment. Also connects to the CONTROL S OUT jack of the supplied remote commander with the supplied remote control cable (stereo cable) to be used as a wired remote control. In this case, this jack supplies the power to the remote commander to save the battery power.

**OUT jack (stereo minijack):** Connects to the CONTROL S IN jack of other Sony equipment.

**Note**

When using this jack, the remote control detector on the projector does not function.

**⓮ DEVICE INDEX switches**

When multiple projectors are connected, set the device index number of each projector.

To display the device index number on the screen, press the NORMAL key, and the ENTER key on the remote commander.

**Note**

Do not set the device index number to "00." If you do, the projector will not operate with the remote commander.

You can operate the projector with the keys on the control panel of the projector but the connected equipment cannot be operated with the keys on the control panel.

**⓯ RS-232C/RS-422A selector**

Selects the function of the RS-232C/RS-422A connector.

**⓰ RS-232C/422A REMOTE connector (D-sub 9-pin)**

Used to expand the system connections using the RS-232C/422A interface.

**⓱ PJ COM (projector communication) IN/OUT connectors (D-sub 9-pin)**

These are the connectors conforming to the RS-485 standards, especially designed to expand the system using Sony projectors.

Use these connectors to connect the PJ COM system of the PC-3000 Signal Interface Switcher.

When the cable is connected to the IN connector only, attach the supplied terminator to the OUT connector.

To connect multiple projectors, connect the IN connector to the OUT connector of another projector in cascade, and attach the supplied terminator to the OUT connector of the last projector.

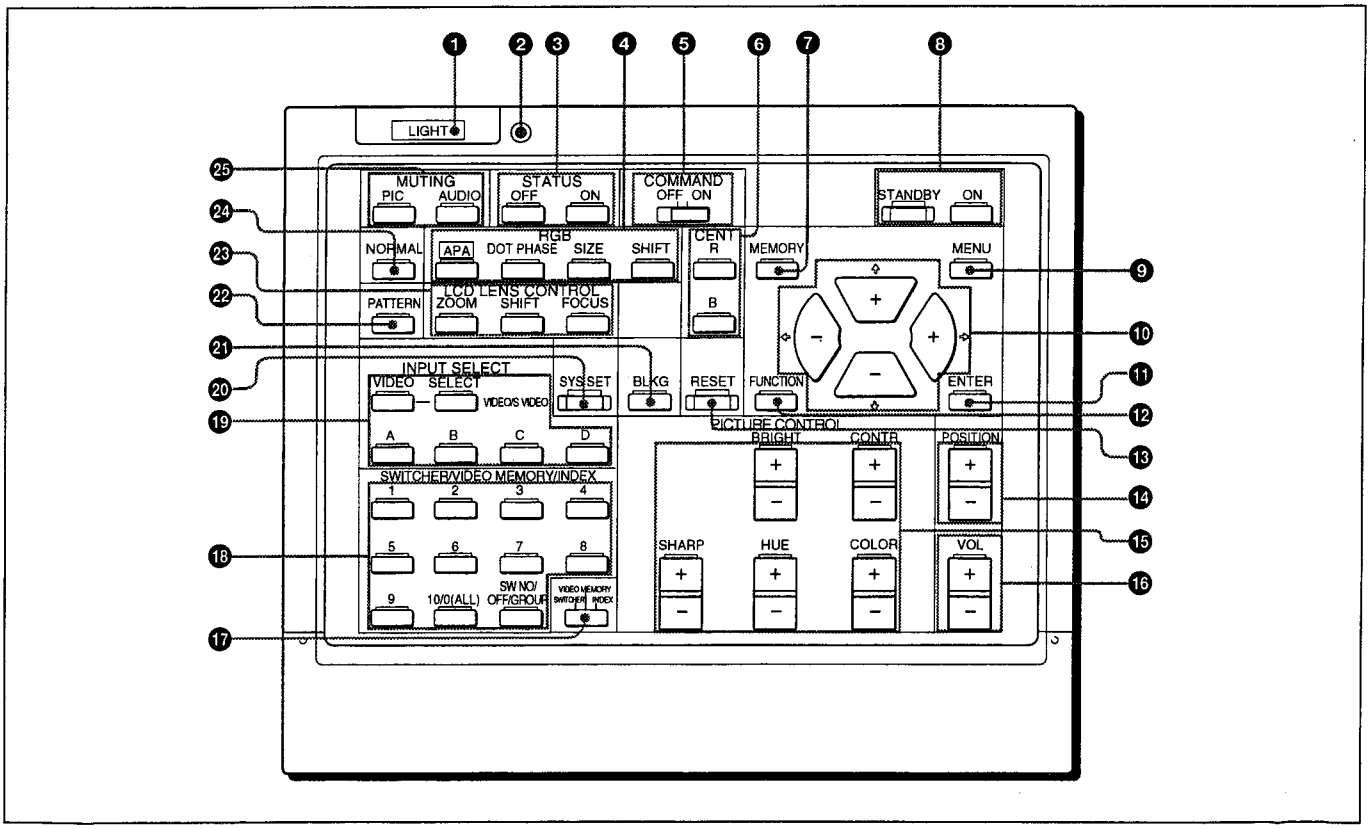
*For details on the specifications of the connector, refer to the Protocol Manual prepared by Sony.*

## Remote Commander/Control Panel

The locations and functions of the keys on the remote commander are the same as those on the control panel of the projector. (Only the remote commander is equipped with the transmission indicator and the COMMAND ON/OFF switch.)
The remote commander may be used as a wired or wireless remote control.

**Notes**

- The RGB APA/DOT PHASE ❹, VOL +/– ⓰, INPUT SELECT D ⓳, LCD LENS CONTROL ㉓ and AUDIO MUTING ㉕ keys do not function with this projector.
- The RGB SIZE/SHIFT ❹, CENT R/B ❻ and BLKG ㉑ keys function only in the pro-user mode.
- The keys on the control panel are basically effective for this projector only. Only the commands from the SYS SET key and the switcher select commands are transmitted to the connected equipment via the PJ COM connector.




### ❶ LIGHT button

Illuminates the key indicators when the COMMAND switch ❺ is set to ON. If the COMMAND switch is set to OFF, only the COMMAND switch is illuminated.
The key indicators turn off if you press the LIGHT button again.
If you do not press any key for more than 30 seconds, the indicators also turn off automatically.
When the remote commander is connected to the CONTROL S IN/PLUG IN POWER jack of the projector via the remote control cable, the power is supplied to the remote commander from the projector.

### ❷ Transmission indicator (only for the remote commander)

Lights each time you press a key. If it does not light, replace the batteries with new ones.

### ❸ STATUS ON/OFF keys

Press OFF to eliminate the on-screen display.
Press ON to restore the on-screen display.

**Note**

The menus and warning messages appear even if the OFF key is pressed.

**❹ RGB keys**
Adjust the picture.
**APA:** This key does not function with this projector.
**DOT PHASE:** This key does not function with this projector.
**SIZE:** Enters the size adjustment mode for the input signal in the pro-user mode. Next adjust the size of the picture using the four arrow keys. Each time you press this key, the COARSE and FINE modes are switched alternately.
←: to reduce horizontal size
→: to expand horizontal size
↑: to expand vertical size
↓: to reduce vertical size
**SHIFT:** Enters the shift adjustment mode for the input signal in the pro-user mode. Next adjust the position of the picture using the four arrow keys. The picture shifts in the direction of the arrow on the pressed key. Each time you press this key, the COARSE and FINE modes are switched alternately.

**❺ COMMAND ON/OFF switch (only for the remote commander)**
No keys on the remote commander except the LIGHT button ❶ function when this switch is set to OFF. This saves battery power when a button is pressed inadvertently.

**❻ CENT R/B keys**
Enter the centering adjustment mode of the red and blue in the pro-user mode.
**R:** Press to enter the red centering adjustment mode.
**B:** Press to enter the blue centering adjustment mode.
Perform the centering adjustment using the four arrow keys.

**❼ MEMORY key**
Stores various adjusted data into memory.

**❽ ON/SYANDBY keys**
Turn on and off the projector when the MAIN POWER switch on the projector is set to ON.

**❾ MENU key**
Displays the main menu. Press it again to turn off the menu.

**❿ Arrow keys**
Adjust the value or select the item in the menu.

**⓫ ENTER key**
Stores the settings in the menu, or selects and displays the index number.

**⓬ FUNCTION key**
Press to use the extended functions.

**⓭ RESET key**
Resets the adjusted levels to the factory preset or service adjusted levels.

**⓮ POSITION +/– keys**
Select the position to be adjusted on the screen in focus, registration or blanking adjustment mode. Also, set V SHIFT to WIDE or NARROW in or HDTV RGB input signal's SHIFT adjustment mode.

**⓯ PICTURE CONTROL keys**
Adjust the picture conditions: CONTR (contrast), BRIGHT (brightness), COLOR, HUE and SHARP (sharpness).

**⓰ VOL (volume) +/– keys**
These keys do not function with this projector.

**⓱ SWITCHER/VIDEO MEMORY/INDEX select switch**
Selects the function of the SWITCHER/VIDEO MEMORY/INDEX keys.
**SWITCHER:** to select the input from the PC-3000 or the PC-1271/1271M Signal Interface Switcher.
**VIDEO MEMORY:** to select the set and adjusted video memory data.
**INDEX:** to select a projector by its index number when multiple projectors are used.

**⓲ SWITCHER/VIDEO MEMORY/INDEX keys**
**When the SWITCHER/VIDEO MEMORY/ INDEX select switch is set to SWITCHER**
When the PC-3000 or the PC-1271/1271M Switcher is connected to the projector, press a number key (1 to 8) to select the input from the switcher. Number key 9 and the 10/0 (ALL) key do not function.
To select an input when multiple switchers are connected, set the SWITCHER/VIDEO MEMORY/ INDEX select switch to SWITCHER, then press the **SW NO**/OFF/GROUP key. Next press the switcher number (1 to 8) and the input number (1 to 8) in sequence. Be sure to press the keys one after another within 2 seconds.
e.g. To select input 4 of switcher 2, press the keys as follows:
SW NO → 2 → 4.

**When the SWITCHER/VIDEO MEMORY/INDEX select switch is set to VIDEO MEMORY**

Select the number of the VIDEO MEMORY. To select the data set and adjusted in INPUT MEMORY, press the SW NO/**OFF**/GROUP key to set VIDEO MEMORY to OFF.

**Note**

The 10/0 (ALL) key can be used as "10" key only when the select switch is set to VIDEO MEMORY.

**When the SWITCHER/VIDEO MEMORY/INDEX select switch is set to INDEX**

When multiple projectors are connected, select the device index number of the projector to be adjusted. Press the device index number (1 to 99) and press the ENTER key. Be sure to press the keys one after another within 2 seconds.

e.g. To select 1, press the keys as follows:
0 → 1 → ENTER, or 1 → ENTER.
To select 12, press the keys as follows:
1 → 2 → ENTER.

When adjusting all the projectors simultaneously, press the 10/0 (ALL) key and ENTER key.

**Note**

Depending on the projector, pressing "0," "0" and "ENTER" is not effective.

**To select the projector to be adjusted when the projectors are divided into multiple groups**

First select the group index number and then the projector's device index number.

To select a group, press the SW NO/OFF/**GROUP** key, the group index number (1 to 99) and the ENTER key in sequence. When the group index has a double-digit number, be sure to press the SW NO/OFF/GROUP key before pressing each number key.

Then press the device index number of the projector (1 to 99) and finally press the ENTER key.

e.g. To select the index number 52 projector in group 91, press the keys as follows:
GROUP → 9 → GROUP → 1 → ENTER → 5 → 2 → ENTER.

**⑲ INPUT SELECT keys**

Select the input signal.

**VIDEO:** Video or S video signal input from the VIDEO connectors of the projector (VPH-G90U/G90M) or the IFB-G90E Video Interface Board (VPH-G90E).

**SELECT VIDEO/S VIDEO:** Selects video or S video signal input from the VIDEO connectors after pressing the VIDEO key.

**A:** The RGB, component or HDTV signal input from the INPUT A connectors of the projector

**B:** The signal input from the INPUT B section when the optional interface board other than the IFB-40 is installed

**C:** The signal input from the INPUT C section when the optional interface board is installed.

**D:** This key does not function with this projector.

**Note**

To switch the input signal from the INPUT A, INPUT B or INPUT C section to the S VIDEO IN (or Y IN/C IN) connectors, first press the VIDEO key, then press the SELECT VIDEO/S VIDEO key.

**⑳ SYS SET (system set) key**

When the PC-3000 Signal Interface Switcher is used in the system, press the key to confirm the status of the system, the settings of the interface board, and so on.

**㉑ BLKG (blanking) key**

Enters the blanking adjustment mode in the pro-user mode.

You can adjust the blanking with the four arrow keys.

*For details, see "Blanking Adjustment" on page 28.*

**㉒ PATTERN key**

Displays the internal test patterns of the projector. Each press of the key advances the test pattern sequentially.

**㉓ LCD LENS CONTROL keys**

These keys do not function with this projector.

**㉔ NORMAL key**

Erases the test pattern or cancels the various adjustment modes.

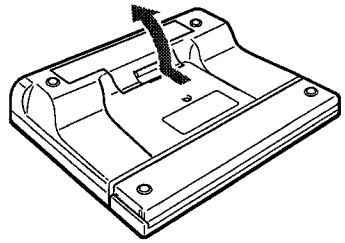
**㉕ MUTING keys**

**PIC (Picture):** Cuts off the picture. To restore the picture, press the key again.

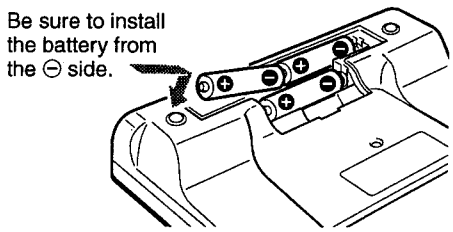
**AUDIO:** This key does not funcion with this projector.

## Battery installation

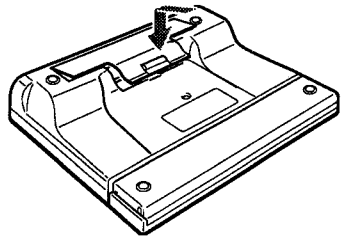
**1** Push to open the lid.



**2** Install the three R6 (size AA) batteries (supplied) with the correct polarity.




**3** Replace the lid.



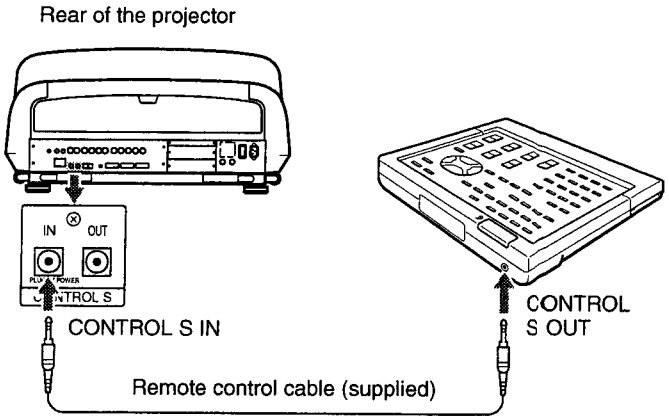
### Notes on batteries

- Be careful that the battery orientation is correct when inserting batteries.
- Do not mix old battery with new one, or different types of batteries.
- If you do not intend to use the remote commander for a long time, remove the batteries to avoid damage from battery leakage. If a battery has leaked, remove the batteries, wipe the battery compartment dry and replace the batteries with new ones.

### Notes on wireless remote control operation

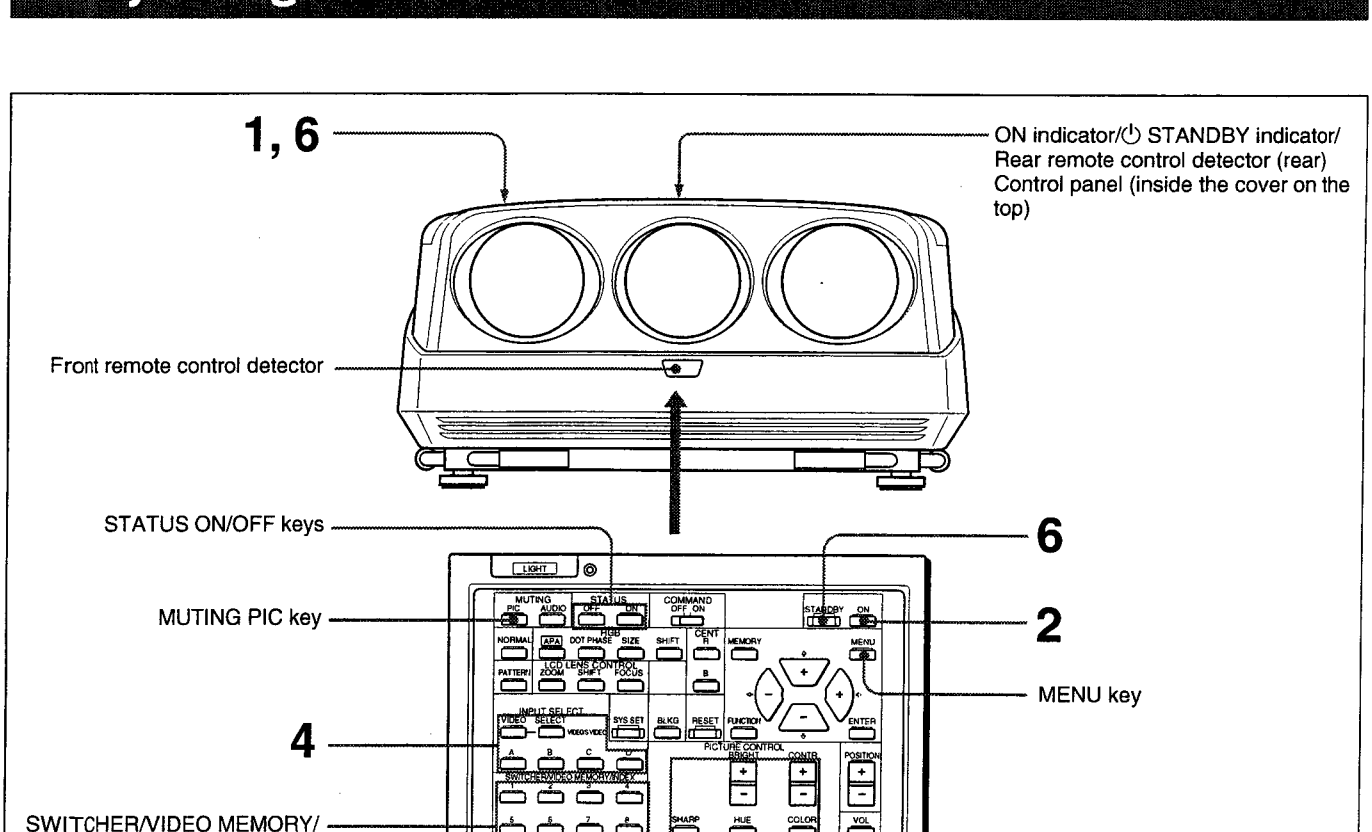
- Be sure that there is nothing to obstruct the infrared beam between the remote commander and the projector.
- The operation range is limited. The shorter the distance between the remote commander and the projector, the wider the angle within which the remote commander can control the projector.
- The remote control detectors on the projector do not operate when the remote commander is being used as a wired remote control. If you wish to use the remote commander as a wireless remote control, be sure to remove the connecting cable from both the remote commander and the projector.

## Connecting the remote commander to the projector



# Projecting

## Projecting

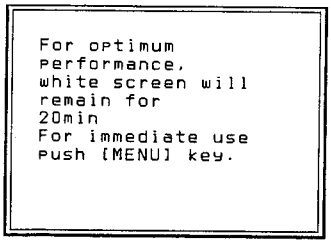



**1** Press the MAIN POWER switch on the rear of the projector.
The ⏻ STANDBY indicator lights in orange and the projector goes into the standby mode.

*(continued)*

**2** Press the ON key on the remote commander or the control panel. The ON indicator on the rear of the projector lights in green.

A white screen with the message shown below (warming up screen) appears on the screen. For getting a stable picture, make sure to allow the projector to warm up for 20 minutes after turning it on.
The message disappears temporarily in about 35 seconds, and will appear subsequently for 5 seconds every 30 seconds.




Press the MENU key to cancel the warming up screen and see the picture immediately after the projector is turned on if, for example, the adjustment has been finished and warming up is not needed.

**3** Turn on the power of the connected equipment.

**4** Select the input signal to be projected with the INPUT SELECT keys.
**VIDEO and SELECT:** To project the signal input from the equipment connected to the VIDEO IN or S VIDEO IN (or Y IN/C IN) connectors. [1] Press the VIDEO key, then select VIDEO or S VIDEO by pressing the SELECT key.
**A:** To project the RGB, component or HDTV signal input from the equipment connected to the INPUT A connectors.
**B:** To project the signal input from the equipment connected to the optional interface board other than the IFB-40 installed to the INPUT B section.
**C:** To project the signal input from the equipment connected to the optional interface board installed to the INPUT C section.
**When the PC-3000 or PC-1271/1271M Signal Interface Switcher is connected:** Set the SWITCHER/VIDEO MEMORY/INDEX select switch to SWITCHER and then select the input with the number keys 1 to 8.

**Note**

When you select the input signal connected to the INPUT A, INPUT B or INPUT C section, be sure to select the correct signal in the SET SETTING 1 menu. If an incorrect signal is selected, picture may be distorted.
*For details, see "The SET SETTING 1 Menu" on page 38.*

1) For the VPH-G90E model, the optional IFB-G90E Video Interface Board is required for using the VIDEO connectors.

**5** Adjust the picture.

*For details, see "Adjusting the picture" on page 24.*

**6** To turn the power off, press the STANDBY key on the remote commander or on the control panel of the projector, then set the MAIN POWER switch on the projector to OFF.

| To | Press |
|---|---|
| **turn off the on-screen display** | the STATUS OFF key.<br>The menus and warning messages appear even if the STANDBY key is pressed.<br>To restore the on-screen display, press the STATUS ON key. |
| **cut off the picture** | the MUTING PIC key.<br>To restore the picture, press the MUTING PIC key. |

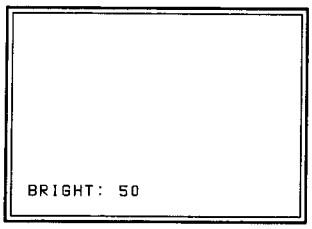
# Adjusting the Picture

Adjust the picture for your preference. The adjustment data can be saved in the memory.

**1** Adjust with the PICTURE CONTROL +/– keys.

| | |
|---|---|
| BRIGHT | Brightness |
| CONTR | Picture contrast |
| COLOR | Color intensity |
| HUE | Hue |
| SHARP | Sharpness |

The adjustment levels are digitally displayed with a range of MIN, 1, 2, ... 99, MAX.




**2** Press the MEMORY key to save the data.

## Restoring the initial data

**1** Press the PICTURE CONTROL key of the item which you want to reset to the initial data.

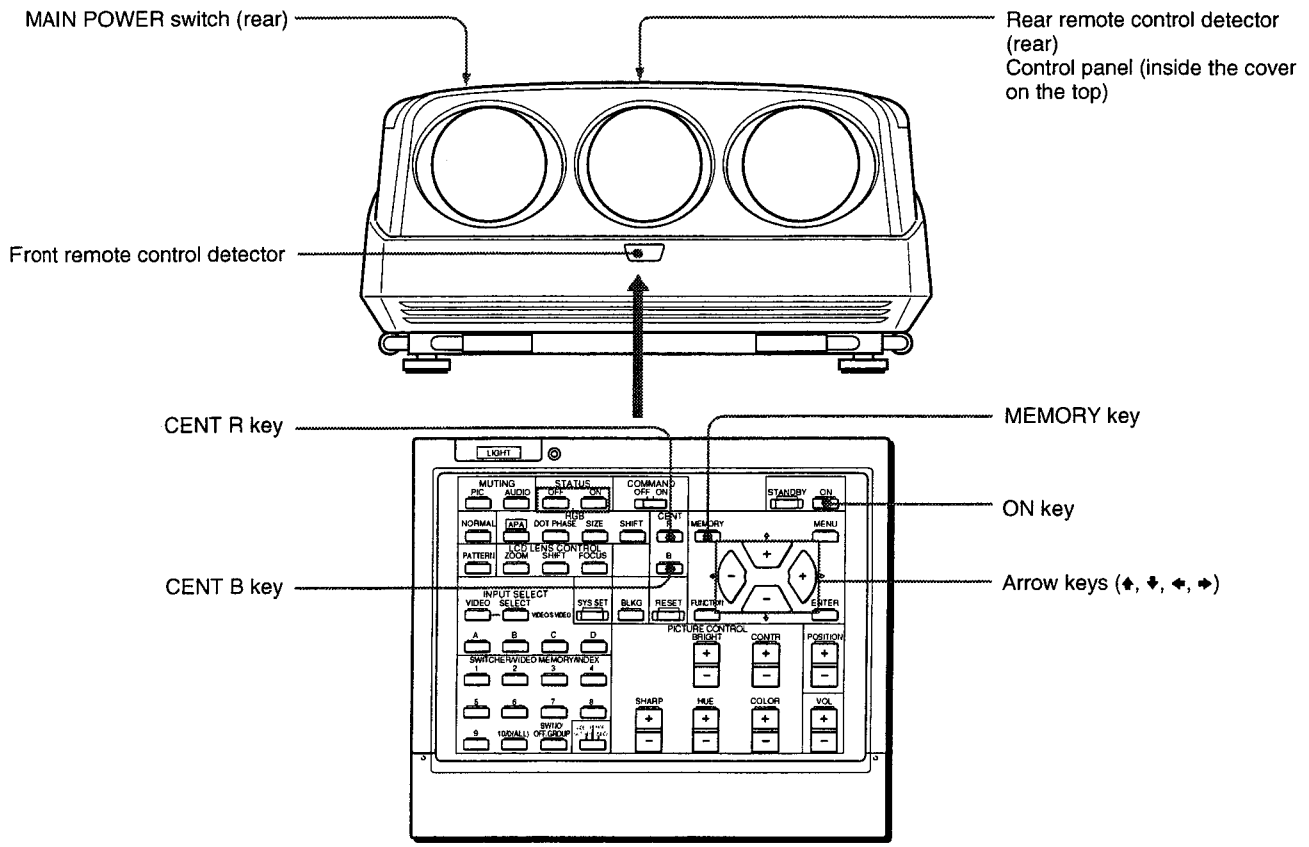
**2** Press the RESET key.
The selected item is reset to the initial data.

**Notes**

- The COLOR, SHARP and HUE keys do not function with the RGB input signals.
- The HUE and COLOR keys do not function if the input signal is black and white.
- The HUE key does not function with the PAL or SECAM color input source.

# Centering Adjustment

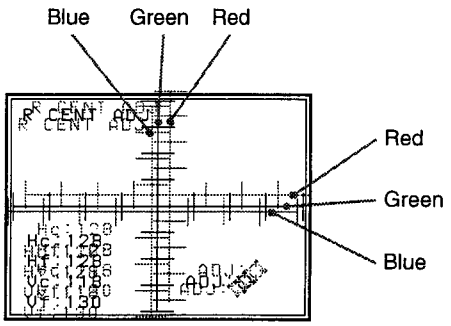
The three colors, red, green and blue must converge for correct projection. If they do not converge, centering adjustment is necessary.


MAIN POWER switch (rear)
Rear remote control detector (rear)
Control panel (inside the cover on the top)
Front remote control detector
CENT R key
MEMORY key
ON key
CENT B key
Arrow keys (↑, ↓, ←, →)

**1** Turn the projector on by switching on the MAIN POWER switch and pressing the ON key on the remote commander.

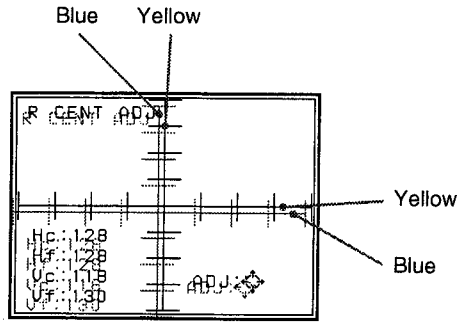
**2** Set the projector to the pro-user mode.
*For details, see "Pro-user mode" on page 31.*

**3** Press the CENT R key.
The built-in CROSS HAIR test pattern appears and the red line will be adjustable.

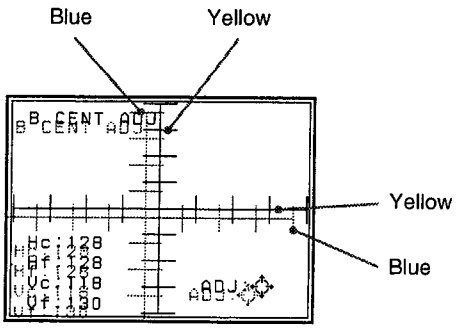



*(continued)*

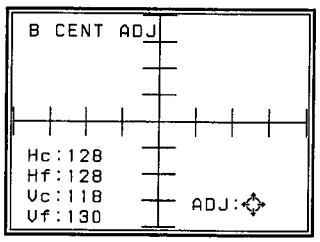
**4** Press the arrow keys to move the red line until the red and green lines converge and become yellow.
The red line moves according to the direction of the arrow.




**5** Press the CENT B key.
The blue line will be adjustable.




**6** Press the arrow keys to move the blue line until the blue and yellow lines converge.
The blue line moves according to the direction of the arrow.
When all three color lines converge, the test pattern will become white.




**7** Press the MEMORY key.
The normal display is restored.

# Adjusting the Size And Shift of the Picture

The size and shift of the input picture can be adjusted to fit the screen in the pro-user mode only.

**Note**

When you connect multiple input sources to the projector, such as when using the switcher, adjust the picture size, picture shift and blanking for each input signal. The information about the input signal is shown in the INPUT INFO menu.



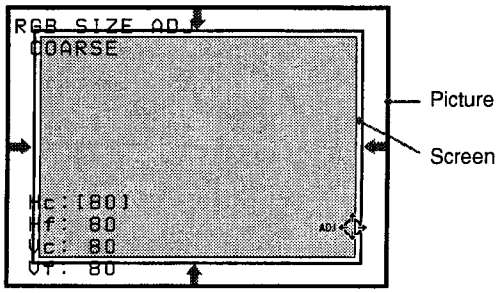
## SIZE adjustment

Adjust the picture size if it does not fit the screen.

**1** Press the RGB SIZE key.
(Use the RGB SIZE key even for the signal other than RGB.)

**2** Adjust the picture size with the arrow keys.

- ↑ : The vertical size is expanded.
- ↓ : The vertical size is reduced.
- → : The horizontal size is expanded.
- ← : The horizontal size is reduced.




To adjust precisely, press the RGB SIZE key again. The projector enters the FINE adjustment mode, and you can fine adjust the size. By pressing the RGB SIZE key again, the COARSE adjustment mode is resumed.

**3** Press the MEMORY key to save the adjustment data.

### Resetting to the initial preset size

The picture size of the video signal can be reset to the initial preset size by pressing the RESET key in RGB SIZE adjustment mode. (The picture size of signals other than the video signal cannot be reset.)

## SHIFT adjustment

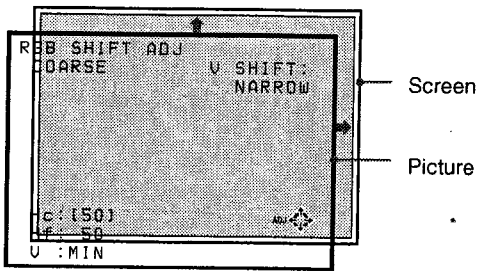
If the picture needs to be shifted to fit the screen, adjust the position of the picture.

**1** Press the RGB SHIFT key.
(Use the RGB SHIFT key even for the signal other than RGB.)

*(continued)*

**2** Adjust the shift with the arrow keys.

- ↑ : The picture is shifted upward.
- ↓ : The picture is shifted downward.
- → : The picture is shifted rightward.
- ← : The picture is shifted leftward.




To adjust precisely, press the RGB SHIFT key again. The projector enters the FINE adjustment mode, and you can fine adjust the horizontal shift only. By pressing the RGB SHIFT key again, the COARSE adjustment mode is resumed.

**Note**

When the RGB or HDTV signal is input, the adjustable range of the vertical shift (V SHIFT) can be set to WIDE or NARROW by pressing the POSITION +/– keys. When the video, S video, component or SDI 4 : 2 : 2 signal is input, V SHIFT is automatically fixed to NARROW and the adjustable range of the vertical shift will become narrower than that of the RGB or HDTV signal.

**3** Press the MEMORY key to save the adjustment data.

### Resetting to the initial preset position

The position of the picture of the video signal can be reset to the initial preset position by pressing the RESET key in RGB SHIFT adjustment mode. (The position of the picture of signals other than the video signal cannot be reset.)

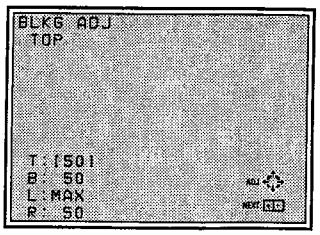
## Blanking adjustment

If the displayed picture is larger than the screen, cut off the excess parts.

**1** Press the BLKG key.

**2** Press the POSITION +/– keys or the BLKG key to select the part to be adjusted.

- When you press the + key or the BLKG key, the position cycles through the following order: TOP → BOTTOM → LEFT → RIGHT → TOP ...
- When you press the – key, the position cycles in reverse order.




**3** Adjust with the arrow keys.

- Press the ↓ and ↑ keys to adjust the TOP and BOTTOM positions.
- Press the ← and → keys to adjust the LEFT and RIGHT positions.

**4** Press the MEMORY key to save the adjustment data.

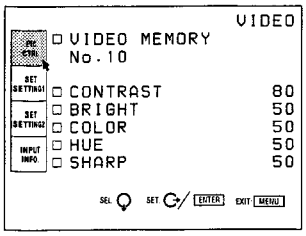
# Adjustments and settings using the menu

## Using the Menu

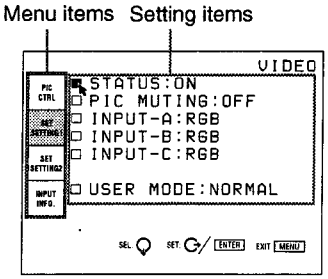
The projector is equipped with an on-screen menu for making various adjustments and settings.
There are two menu modes : user mode and pro-user mode, to limit the menu items according to the level of the operator of the projector.

### Basic Menu Operation

**1** Press the MENU key.
The menu display appears.
The menu presently selected is highlighted in blue.




**2** Use the ↓ or ↑ keys to select a menu, then press the → key or the ENTER key.
The selected menu appears.
The setting items that are indicated in white cannnot be selected.




**3** Use the ↓ or ↑ keys to select a setting item, then press the → key or the ENTER key.
The adjustment menu or the setting menu (pop-up menu) appears.

#### To go to the next page

If there are two or more pages for a menu, the ▼ indication appears below the bottom item. Move the cursor to the bottom item with the ↓ key, then press the ↓ key.

#### To go back to the previous page

Move the cursor to the top item with the ↑ key, then press the ↑ key.

*(continued)*

**4** Make adjustment or setting on the menu.

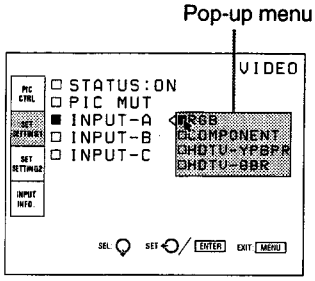
### To change the adjustment level

To increase the level, press the ↑ or → key.
To decrease the level, press the ↓ or ← key.
Then press the ENTER key to store the level. The original screen is restored.

### To select an item

Use the ↓ or ↑ key to select an item in a pop-up menu. For some items, the result or effect of the selection is simultaneously reflected on the screen. For other items, press the ← key or the ENTER key to confirm the selection. The selected setting is stored and the pop-up menu disappears.

Pop-up menu




*For details on setting individual items, see the relevant menu pages.*

## To clear the menu display

Press the MENU key or NORMAL key.
The menu display also disappears automatically if no key is pressed for about one minute.

## Memory of the settings

The settings in the menus are automatically stored in the projector memory. You can also store the settings by pressing the MEMORY key.

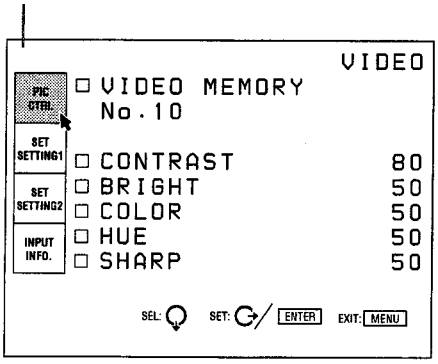
# Menu Modes

There are two menu modes for this projector.

## User mode

This is the menu mode for end users. Only the minimum menu items for usual settings and adjustments appear in this mode.

No indication for user mode

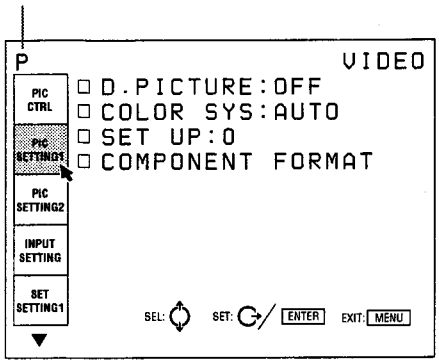



The user mode is factory preset. By pressing the MENU key for the first time, the user mode appears.

## Pro-user mode (P)

This is the menu mode for advanced end users who know the operation and functions of the projector very well. The menu items for detailed settings and adjustments are provided so that they can get the most of the projector functions.

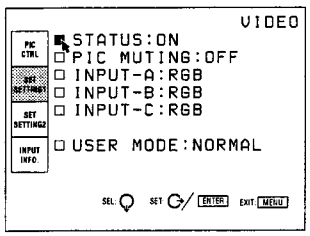
Pro-user mode indication



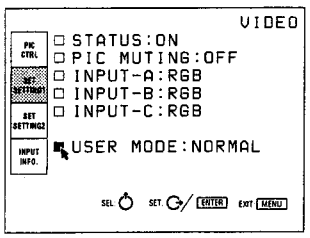

### To set to the pro-user mode

**1** Press the MENU key.
The menu in the user mode appears.

**2** Press the ↓ or ↑ key to select SET SETTING 1, then press the ENTER or → key.

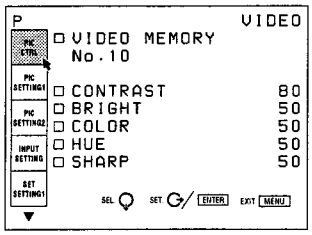



**3** Press the ↓ or ↑ key to select USER MODE, then press the ENTER or → key.




**4** Press the ↓ or ↑ key to select PRO in the pop-up menu, then press the ENTER or ← key.
The menu disappears.

**5** Press the MENU key.
The menu in the pro-user mode appears with the letter "P" at the top-left of the screen.

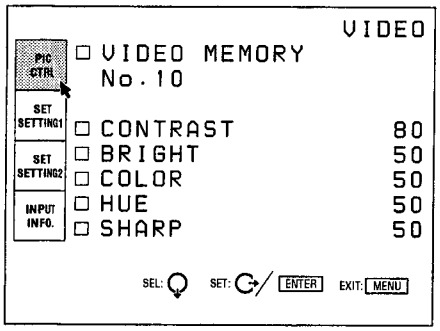



### To reset to the user mode

Perform the same steps for setting to the pro-user mode, and set USER MODE in the SET SETTING 1 menu to NORMAL.
Press the ENTER or ← key to turn off the menu. When the MENU key is pressed again, the menu in the user mode appears.

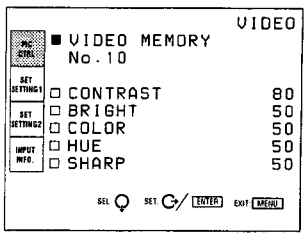
# The PIC CTRL (Picture Control) Menu [User/Pro-user modes]

The PIC CTRL menu displays the information on the picture adjustments.
To adjust the picture, use the keys on the remote commander.
Items that can be adjusted are highlighted in green.
You cannot select the items indicated in white.




## VIDEO MEMORY

Indicates the number of video memory.
The number 1 to 10 can be selected with the VIDEO MEMORY keys on the remote commander.




The video memory is a part of the SET MEMORY, and stores 10 types of the aspect ratio, picture quality, etc.
Select a video memory number 1 to 10, then the aspect ratio and picture quality that you adjust will be stored in the selected video memory.
If you want to use the aspect ratio and picture quality data stored in the INPUT MEMORY, select OFF.

### Contents of the video memory data

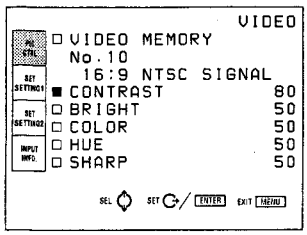
COLOR TEMPERATURE, D. PICTURE, V SHIFT WIDE/NARROW, COMPONENT FORMAT, COMB FILTER, DRC LEVEL, CONTRAST, BRIGHT, COLOR, HUE, SHARP, RGB SIZE, RGB SHIFT, BLANKING

### Aspect ratios preset at the factory

The data for the following aspect ratios have been stored in each video memory number at the factory.

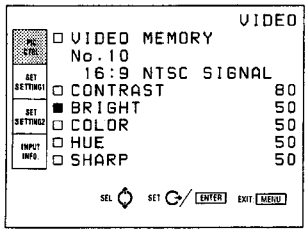
| No. | Aspect ratio |
|---|---|
| 1 | 4 : 3 |
| 2 | 4 : 3 |
| 3 | 4 : 3 |
| 4 | 4 : 3 |
| 5 | 4 : 3 |
| 6 | 16 : 9 |
| 7 | 16 : 9 |
| 8 | 16 : 9 |
| 9 | 16 : 9 |
| 10 | 16 : 9 |

## CONTRAST



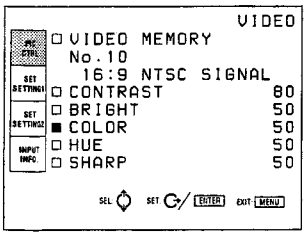

The higher the setting, the greater the contrast.
The lower the setting, the lower the contrast.

## BRIGHT (brightness)



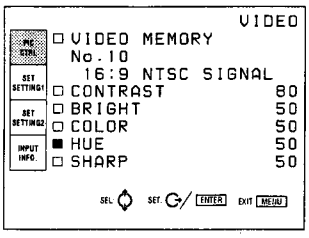

The higher the setting, the brighter the picture.
The lower the setting, the darker the picture.

## COLOR



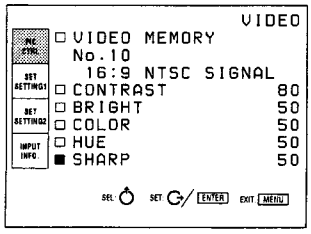

The higher the setting, the greater the intensity.
The lower the setting, the lower the intensity.

## HUE




At high settings, the picture becomes greenish.
At low settings, the picture becomes purplish.

## SHARP (sharpness)




The higher the setting, the sharper the picture.
The lower the setting, the softer the picture.

## Input signals and adjustable/setting items

| Item | Input signal | | | |
|---|---|---|---|---|
| | Video or S video (Y/C)* | Component SDI 4:2:2 | HDTV | RGB |
| VIDEO MEMORY | Y | Y | Y | Y |
| CONTRAST | Y | Y | Y | Y |
| BRIGHT | Y | Y | Y | Y |
| COLOR | Y | Y | Y | N |
| HUE | Y (NTSC$_{3.58}$/ NTSC$_{4.43}$ system only) | Y | Y | N |
| SHARP | Y | Y | Y | N |

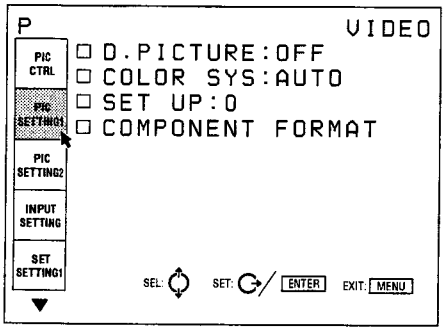
Y: Adjustable/can be set
N: Not adjustable/cannot be set

* For the VPH-G90E model, the optional IFB-G90E Video Interface Board is required.

# The PIC SETTING 1 (Picture Setting 1) Menu

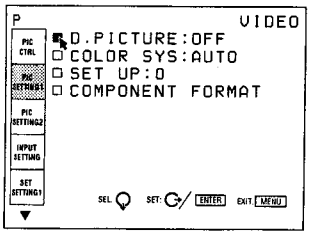
[Pro-user mode]

The PIC SETTING 1 menu is used for setting the picture quality.
Items that can be set are highlighted in green.
You cannot select the items indicated in white.




## D. (Dynamic) PICTURE

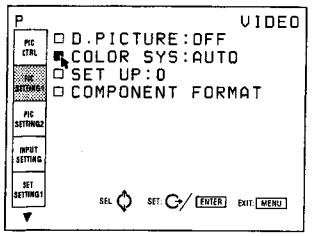
Emphasizes the black of the composite video, S video (Y/C) or component signal.




**ON:** Emphasizes the black to produce a bolder "dynamic" picture.
**OFF:** Reproduces the dark portions of the picture accurately, in accordance with the source signal.

## COLOR SYS (System)

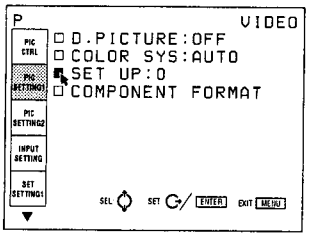
Selects the color system of the composite video or S video (Y/C) signal.




Select among AUTO, NTSC3.58, PAL, SECAM, NTSC4.43 and PAL-M.
Normally, set to AUTO.
If the picture is distorted or colorless, select the color system according to the input signal.

## SET UP

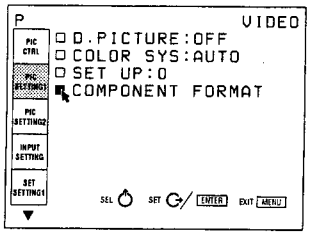
Changes the set up level (standard black level) to 0 IRE or 7.5 IRE according to the NTSC source signal.




**0 IRE:** Normally, set to this position.
**7.5 IRE:** Set to this position when the black color is too light.

## COMPONENT FORMAT

Selects the format of the component input signal.




**SMPTE/EBU-N10:** Set to this position if the input signal is the SMPTE or EBU-N10 format component signal.
**BETACAM7.5:** Set to this position if the input signal is the Betacam format component signal.

## Input signals and adjustable/setting items

| Item | Input signal | | | |
|---|---|---|---|---|
| | Video or S video (Y/C)* | Component SDI 4:2:2 | HDTV | RGB |
| D. PICTURE | Y | Y | N | N |
| COLOR SYS | Y | N | N | N |
| SET UP | Y (NTSC3.58/ NTSC4.43 system only) | N | N | N |
| COMPONENT FORMAT | N | Y | N | N |

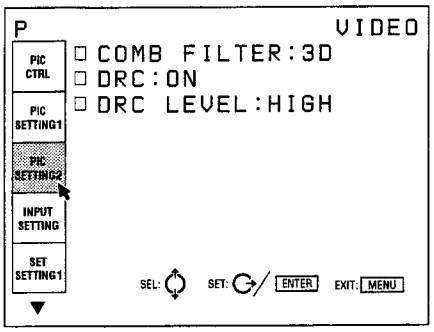
Y: Adjustable/can be set
N: Not adjustable/cannot be set

* For the VPH-G90E model, the optional IFB-G90E Video Interface Board is required.

# The PIC SETTING 2 (Picture Setting 2) Menu

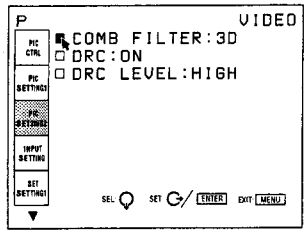
[Pro-user mode]

The PIC SETTING 2 menu is used for setting the picture quality.
Items that can be set are highlighted in green.
You cannot select the items indicated in white.




## COMB FILTER

Selects the comb filter which reduces the cross color and dot interference of the NTSC signal to reproduce clear images.

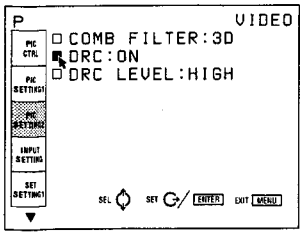



**3D:** Three-dimensional comb filter. Normally use this comb filter.

**3LINE:** 3LINE comb filter. This comb filter may be more effective for fast-moving pictures.

## DRC (Digital Reality Creation)

Set to ON to make the NTSC signal 4-times density image.



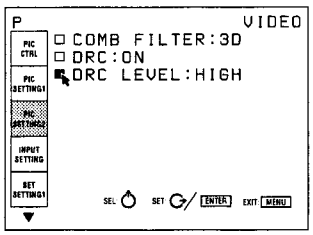

Normally set to ON. When a 15 kHz signal is input, the DRC function activates. When the DRC is not required, set to OFF.

**Note**

The DRC is effective only when the 15 kHz signal complies with the timing of the video signal. If it has a particular timing, the image may be disturbed with the DRC ON.

## DRC LEVEL

Selects the effect of the DRC for the NTSC signal. This item can be selected only for an interlaced signal.




HIGH is preset at the factory. Select LOW if the picture is glaring.

## Input signals and adjustable/setting items

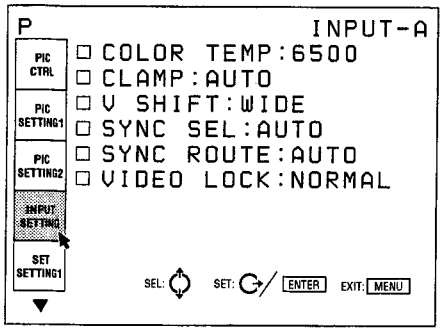
| Item | Input signal | | | |
|---|---|---|---|---|
| | Video or S video (Y/C) * | Component SDI 4:2:2 | HDTV | RGB |
| COM FILTER | Y (NTSC3.58 system only) | N | N | N |
| DRC | Y | Y | N | Y (15 kHz RGB only) |
| DRC LEVEL | Y | Y | N | Y (15 kHz RGB only) |

Y: Adjustable/can be set
N: Not adjustable/cannot be set

* For the VPH-G90E model, the optional IFB-G90E Video Interface Board is required.

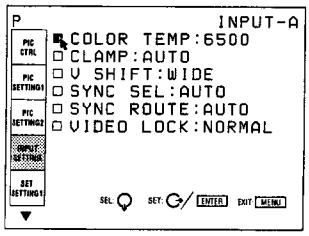
# The INPUT SETTING Menu [Pro-user mode]

The INPUT SETTING menu is used to adjust the input signal.
Items that can be adjusted are displayed in green.
You cannot select the items indicated in white.




## COLOR TEMP (Temperature)

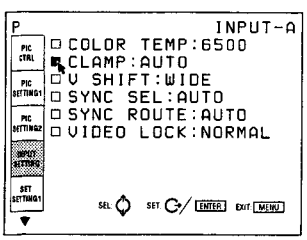
Selects the appropriate color temperature according to your application and the input source signal.




**9300:** standard color temperature for consumer-use products
**6500:** standard color temperature for business-use products
**5400:** standard color temperature for HDTV
**3200:** standard color temperature for medical products and studio cameras
**CUSTOM:** If you wish to make the color of a particular input signal uniform to that of another display, select CUSTOM, then adjust the white balance.

## CLAMP

Corrects the luminance of the input picture.



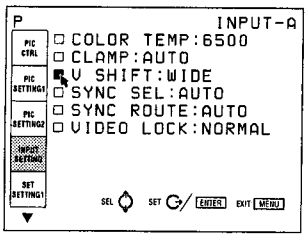

CLAMP is used as a standard for setting the black level of a picture correctly. The standard position of the clamp depends on the kind of sync signal being used. Normally, the projector CPU judges the signal and sets the position automatically. However, the CPU can misjudge the signal because of noise. If the luminance of the picture seems to be incorrect, the clamp position may need to be changed.
**AUTO:** Automatic setting mode. Normally set to this position.
**SonG:** Set to this position if the black seems too light or greenish.
**H/C:** Set to this position if the picture is too dark or luminance is unstable.
**HP:** If the luminance is still incorrect after changing to the SonG or H/C position, set to this position and perform the H-SHIFT adjustment.
**TRI-LEVEL S:** Set to this position if the picture is dark when using the tri-level sync.

**Notes**

- If the external signal does not have the SonG signal, the H/C position is recommended.
- If the luminance is still incorrect after changing the clamp setting, check the input signal and the connections.

## V (Vertical) SHIFT

Sets the adjustable range of the vertical shift of the input signal.



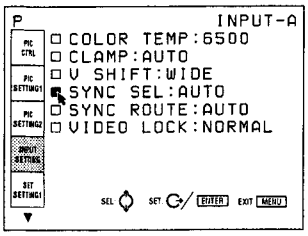

**WIDE:** Normally, set to this position (factory preset).
**NARROW:** When some signal such as a superimposed signal with unstable vertical sync. signal is input, the picture may be distorted vertically. In this case, set to this position. Adjustable range in the lower direction will become narrow.

**Note**

When the video, S video, component or SDI 4:2:2 signal is input, V SHIFT is fixed to NARROW.

## SYNC SEL (select)

Selects the sync signal when using an external sync signal.




### When an RGB signal is input

**AUTO:** Automatic setting mode. Normally set to this position.

**SonG:** Set to this position if you project the picture using the sync on G signal.

**C:** Set to this position if you project the picture using the composite sync signal.

**HV:** Set to this position when using the horizontal/vertical sync signal.

### When an HDTV signal is input

You can select the items below instead of the above items.

**AUTO:** Automatic setting mode. Normally set to this position.

**INT:** Set to this position when using the internal sync signal.

**EXT [C]:** Set to this position when using the external composite sync signal.

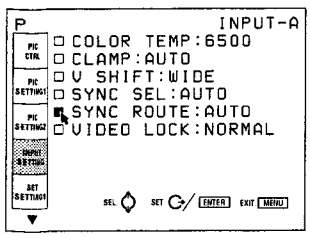
**EXT [HV]:** Set to this position when using the external horizontal/vertical sync signal.

**Note**

For an RGB signal, this item can be selected only when SonG and C/HV are included.

## SYNC ROUTE

Selects the route of the sync signal when the RGB signal is input to INPUT A.



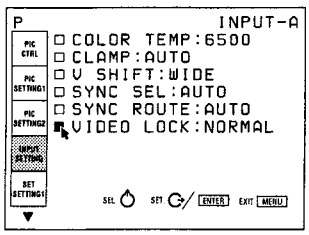

**AUTO:** Automatic setting mode. Normally set to this position.

**NORMAL:** Set to this position for a normal sync input, that is, when there is no video signal on the sync line.

**SYNC w VIDEO:** Set to this position when the video signal is on the sync line and the sync of the image is distorted in the AUTO position.

## VIDEO LOCK

Selects the range of the frequency deviation of the input signal so that the INPUT MEMORY data is switched automatically if the frequency deviation exceeds the selected range. This item can be selected only for RGB input signals.




**NORMAL:** Normally set to this position.

**WIDE:** Set to this position if the input signal is unstable or flickers. This phenomenon may appear during variable speed playback by the VCR. etc.

## Input signals and adjustable/setting items

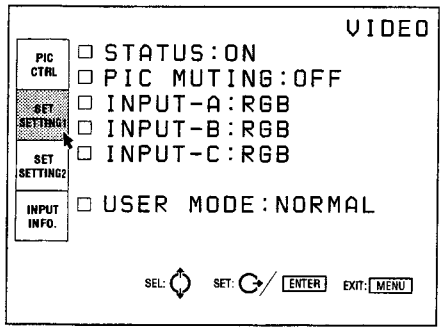
| Item | Input signal | | | |
|---|---|---|---|---|
| | Video or S video (Y/C)* | Component SDI 4:2:2 | HDTV | RGB |
| COLOR TEMP | Y | Y | Y | Y |
| CLAMP | N | N | N | Y |
| V SHIFT | N | N | Y | Y |
| SYNC SEL | N | N | Y | Y |
| SYNC ROUTE | N | N | N | Y |
| VIDEO LOCK | N | N | N | Y |

Y: Adjustable/can be set
N: Not adjustable/cannot be set

* For the VPH-G90E model, the optional IFB-G90E Video Interface Board is required.

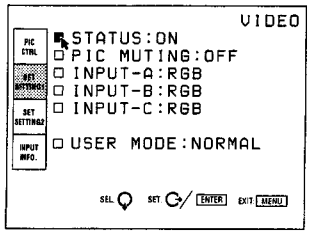
# The SET SETTING 1 Menu [User/Pro-user modes]

The SET SETTING 1 menu is used for changing the default settings of the projector.
Items that can be adjusted are highlighted in green.
You cannot select the items indicated in white.




## STATUS

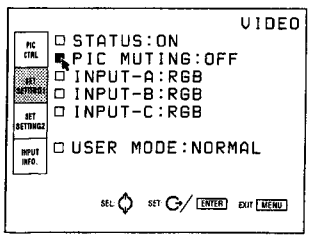
Selects the on-screen display mode.




**ON:** Shows all of the on-screen displays.
**OFF:** Turns off all of the on-screen displays except for warning messages and menu displays.

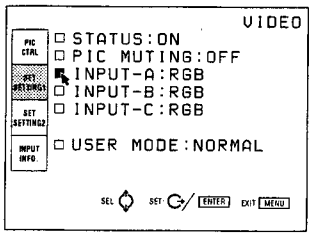
## PIC. (Picture) MUTING

Set to ON to cut off the picture.
When set to ON, "PIC MUTING" appears on the screen.




## INPUT A

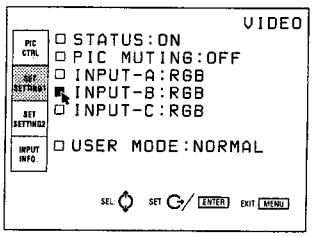
Selects the signal input from the INPUT A connectors.




**RGB:** Inputs the RGB signal.
**COMPONENT:** Inputs the component signal.
**HDTV-YPBPR:** Inputs the HDTV($YP_BP_R$) signal.
**HDTV-GBR:** Inputs the HDTV(GBR) signal.

## INPUT B

Selects the signal input from the IFB-12/12A Signal Interface Board (not supplied) installed to the INPUT B section and set to the INPUT mode.




**RGB:** Inputs the RGB signal.
**COMPONENT:** Inputs the component signal.
**HDTV-YPBPR:** Inputs the HDTV($YP_BP_R$) signal.
**HDTV-GBR:** Inputs the HDTV(GBR) signal.
**VIDEO:** Inputs the composite video signal.
**S-VIDEO:** Inputs the S video signal.

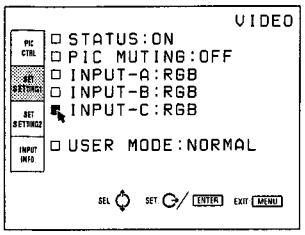
**Note**

When a signal interface board other than the IFB-12/12A is installed or the IFB-12/12A is set to the OUTPUT mode, the menu items cannot be selected.

# The SET SETTING 2 Menu [User/Pro-user modes]

## INPUT C

Selects the signal input from the IFB-12/12A Signal Interface Board (not supplied) installed to the INPUT C section and set to the INPUT mode.



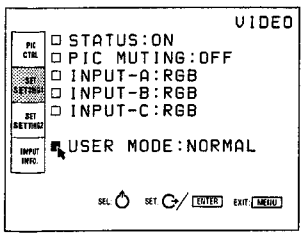

**RGB:** Inputs the RGB signal.
**COMPONENT:** Inputs the component signal.
**HDTV-YPBPR:** Inputs the HDTV($YP_BP_R$) signal.
**HDTV-GBR:** Inputs the HDTV(GBR) signal.
**VIDEO:** Inputs the composite video signal.
**S-VIDEO:** Inputs the S video signal.

**Note**

When a signal interface board other than the IFB-12/12A is installed or the IFB-12/12A is set to the OUTPUT mode, the menu items cannot be selected.

## USER MODE

Selects the menu mode between the user mode and the pro-user mode.

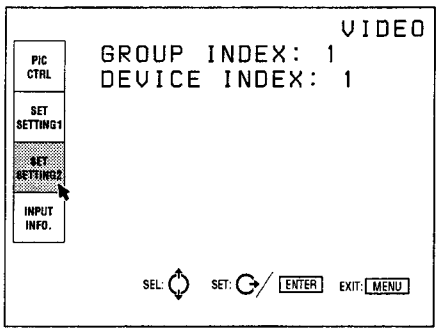



**NORMAL:** User mode
**PRO:** Pro-user mode

*For details, see "Menu Modes" on page 30.*

The SET SETTING 2 menu is used for changing the default settings of the projector.
Items that can be adjusted are highlighted in green. You cannot select the items indicated in white.

### User mode




## GROUP INDEX

Indicates the group index number when the group index is set.

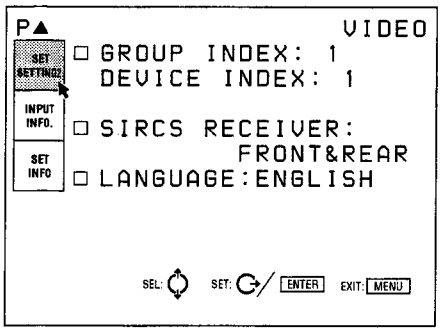
**Note**

The group index number can be set in the pro-user mode.

## DEVICE INDEX

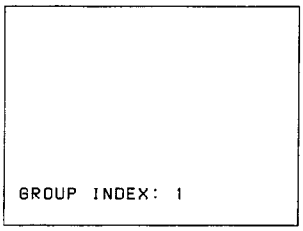
Indicates the device index number which is set by the DEVICE INDEX switches on the rear of the projector.

### Pro-user mode




## GROUP INDEX

Sets the group index number with which multiple projectors and switcher are assigned in the same group. 1 to 99 group index number can be set.

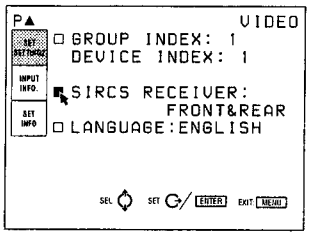



## DEVICE INDEX

Indicates the device index number which is set by the DEVICE INDEX switches on the rear of the projector.

## SIRCS RECEIVER

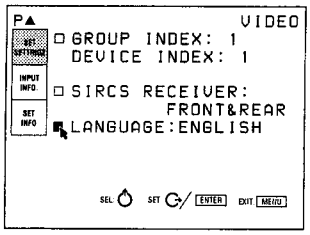
Selects the remote control detectors on the front and rear of the projector, if the wireless remote control does not operate correctly due to the influence of a fluorescent lamp, etc.




**FRONT & REAR:** Activates both the front and rear detectors.
**FRONT:** Activates the front detector only.
**REAR:** Activates the rear detector only.
**OFF:** Deactivates both the front and rear detectors.

## LANGUAGE

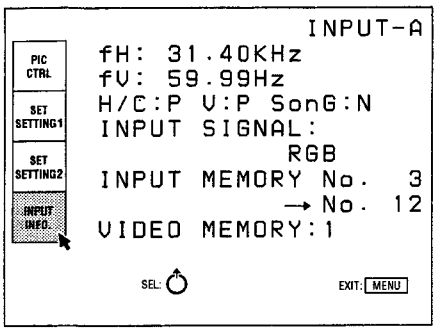
Selects the language used in the on-screen displays.




Available languages are: English, FRANCAIS (French), DEUTSCH (German), ITALIANO (Italian), ESPANOL (Spanish), 日本語 (Japanese) and 中文 (Chinese).

# The INPUT INFO (Information) Menu [User/Pro-user modes]

The INPUT INFO menu displays the information on the current input signal.




## fH (Horizontal frequency)

Indicates the horizontal frequency of the input signal. This indication is not an absolute value, but is only used as a guide.
The horizontal frequency of the input signal is indicated in green; that of the internal signal in yellow.

## fV (Vertical frequency)

Indicates the vertical frequency of the input signal. This indication is not an absolute value, but is only used as a guide.
The vertical frequency of the input signal is indicated in green; that of the internal signal in yellow.

## H/C (Horizontal/Composite sync) V (Vertical sync) SonG (Sync on Green)

Indicates the polarity and use of each sync signal.
**P:** The polarity of the sync signal is positive.
**N:** The polarity of the sync signal is negative.
**–:** No sync signal is input.

## INPUT SIGNAL

Displays the type of current input signal.
**INT. OSC:** No input
**COMPONENT:** Component input signal
**IDTV:** IDTV input signal from the optional PC-1271/1271M Signal Interface Switcher via the optional IFB-3000 Interface Board installed to the PC-1271/1271M.
**15 kRGB:** 15 kHz RGB input signal
**RGB:** RGB input signal
**HDTV YPBPR:** HDTV $YP_BP_R$ input signal
**HDTV GBR:** HDTV GBR input signal
**SDI 4:2:2:** SDI 4:2:2 input signal
**DRC:** when the DRC is set to ON

### Video or S video signals

**NTSC 3.58:** NTSC 3.58 input signal
**NTSC 4.43:** NTSC 4.43 input signal
**PAL:** PAL input signal
**PAL-M:** PAL-M input signal
**SECAM:** SECAM input signal
**B/W:** Black and white input signal
**S-VIDEO:** S video input signal

## INPUT MEMORY No.

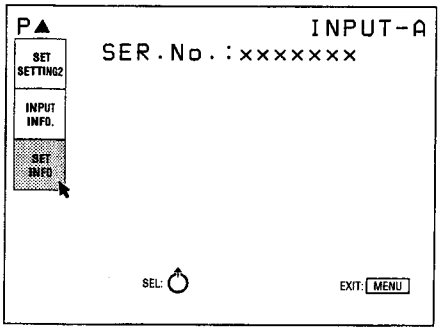
The upper number is the memory number of the data automatically loaded when the current signal is input. The lower number is the new memory number in which the adjustment data of the current input signal is stored. The existing memory number is displayed in green, and a new memory number in yellow.

## VIDEO MEMORY

The selected video memory number is indicated.

# The SET INFO (information) Menu [Pro-user mode]

The SET INFO menu displays the information on the serial number.




## SER. (serial) No.

Indicates the serial number of the projector.

# Installation/connection examples

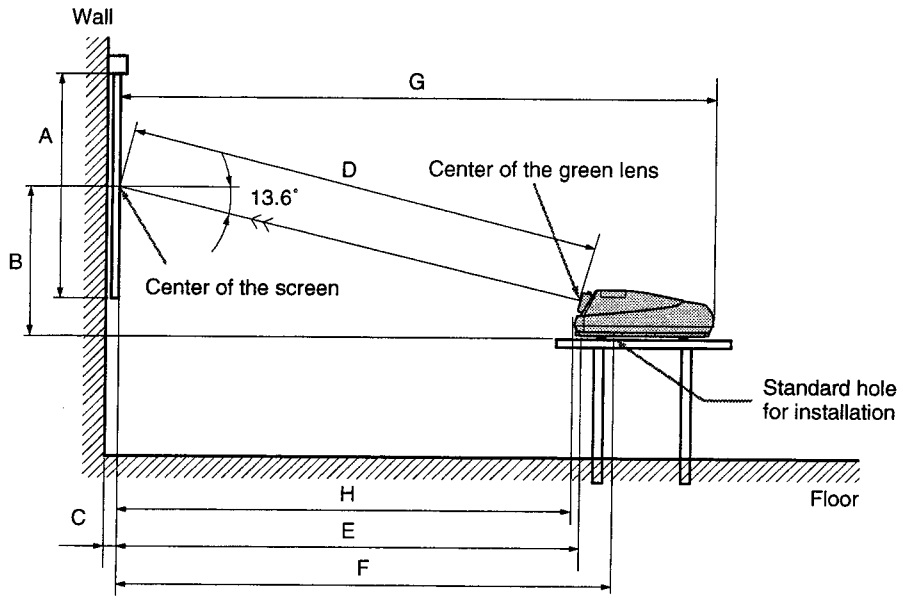
## Installation Examples

Installation and the preliminary adjustments should be carried out by Qualified Sony Personnel. This projector allows you to project the picture between 90 and 300 inches.

# Installation Examples

## Installation 1: Floor Installation Using Front Projection Flat Screen

Be sure that the projector is level to the floor.




B: Difference in height between the projector's bottom surface and the center of the screen
E: Horizontal distance between the center of the screen and the center of the green lens
F: Horizontal distance between the center of the screen and the standard hole for installation
H: Horizontal distance between the center of the screen and the projector's front surface

Tolerances
B: ±5%
Other measurements: 0% to +5%

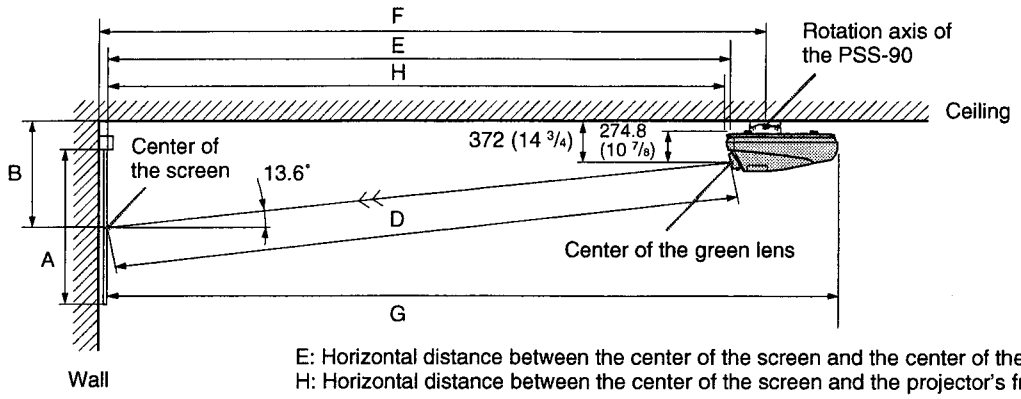
The distances in gray are the factory preset settings. Unit:mm (inches)

| Screen size (inches) | 90 | 100 | 120 | 150 | 180 | 200 | 250 | 300 |
|---|---|---|---|---|---|---|---|---|
| A (Vsize) | 1372 (54 1/8) | 1524 (60) | 1829 (72 1/8) | 2286 (90) | 2743 (108) | 3048 (120) | 3810 (150) | 4572 (180) |
| B (Hcent) | 889 (35) | 950 (37 1/2) | 1074 (42 3/8) | 1288 (50 3/4) | 1488 (58 5/8) | 1621 (63 7/8) | 1942 (76 1/2) | 2287 (90 1/8) |
| C (Width) | | | 28[a] (1 1/8) | 32[b] (1 5/16) | | | | |
| D (TD) | 2587 (101 7/8) | 2847 (112 1/8) | 3373 (132 7/8) | 4285 (168 3/4) | 5137 (202 1/4) | 5702 (224 1/2) | 7065 (278 1/4) | 8533 (336) |
| E (Xlens) | 2514 (99) | 2767 (109) | 3278 (129 1/8) | 4165 (164) | 4993 (196 5/8) | 5542 (218 1/4) | 6867 (270 3/8) | 8294 (326 5/8) |
| F (Lhole) | 2795 (110 1/8) | 3048 (120) | 3559 (140 1/8) | 4445 (175) | 5273 (207 5/8) | 5823 (229 3/8) | 7147 (281 1/2) | 8574 (337 5/8) |
| G (Lmax) | 3520 (138 5/8) | 3773 (148 5/8) | 4284 (168 3/4) | 5171 (203 5/8) | 5999 (236 1/4) | 6548 (257 7/8) | 7873 (310) | 9300 (366 1/4) |
| H (Lfront) | 2437 (96) | 2690 (106) | 3201 (126 1/8) | 4088 (161) | 4916 (193 5/8) | 5465 (215 1/4) | 6790 (267 3/8) | 8217 (323 5/8) |

a) Sony VPS-100FM
b) Sony VPS-120FH and VPS-120FM

## Installation 2: Ceiling Installation Using Front Projection Flat Screen

Use the PSS-90 Projector Suspension Support (not supplied).




E: Horizontal distance between the center of the screen and the center of the green lens
H: Horizontal distance between the center of the screen and the projector's front surface

Tolerances
B: ±5%
Other measurements: 0% to +5%

Unit:mm (inches)

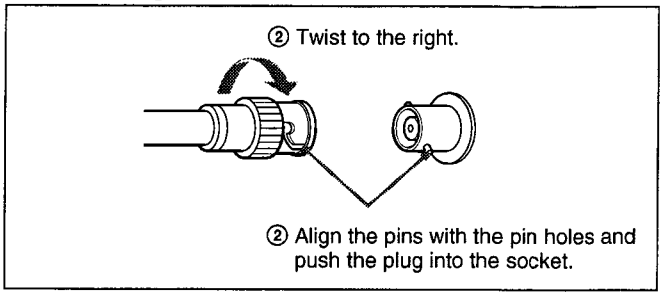
| Screen size (inches) | 90 | 100 | 120 | 150 | 180 | 200 | 250 | 300 |
|---|---|---|---|---|---|---|---|---|
| A (Vsize) | 1372 (54 1/8) | 1524 (60) | 1829 (72 1/8) | 2286 (90) | 2743 (108) | 3048 (120) | 3810 (150) | 4572 (180) |
| B (Hcent) | 985 (38 7/8) | 1046 (41 1/4) | 1170 (46 1/8) | 1384 (54 1/2) | 1584 (62 3/8) | 1717 (67 5/8) | 2038 (80 1/4) | 2383 (93 7/8) |
| D (TD) | 2587 (101 7/8) | 2847 (112 1/8) | 3373 (132 7/8) | 4285 (168 3/4) | 5137 (202 1/4) | 5702 (224 1/2) | 7065 (278 1/4) | 8533 (336) |
| E (Xlens) | 2514 (99) | 2767 (109) | 3278 (129 1/8) | 4165 (164) | 4993 (196 5/8) | 5542 (218 1/4) | 6867 (270 3/8) | 8294 (326 5/8) |
| F (Lhole) | 2932 (115 1/2) | 3185 (125 1/2) | 3696 (145 5/8) | 4310 (169 3/4) | 5138 (202 3/8) | 5687 (224) | 7012 (276 1/8) | 8439 (332 1/4) |
| G (Lmax) | 3520 (138 5/8) | 3773 (148 5/8) | 4284 (168 3/4) | 5171 (203 5/8) | 5999 (236 1/4) | 6548 (257 7/8) | 7873 (310) | 9300 (366 1/4) |
| H (Lfront) | 2437 (96) | 2690 (106) | 3201 (126 1/8) | 4088 (161) | 4916 (193 5/8) | 5465 (215 1/4) | 6790 (267 3/8) | 8217 (323 5/8) |

# Connection Examples

### When making connections:

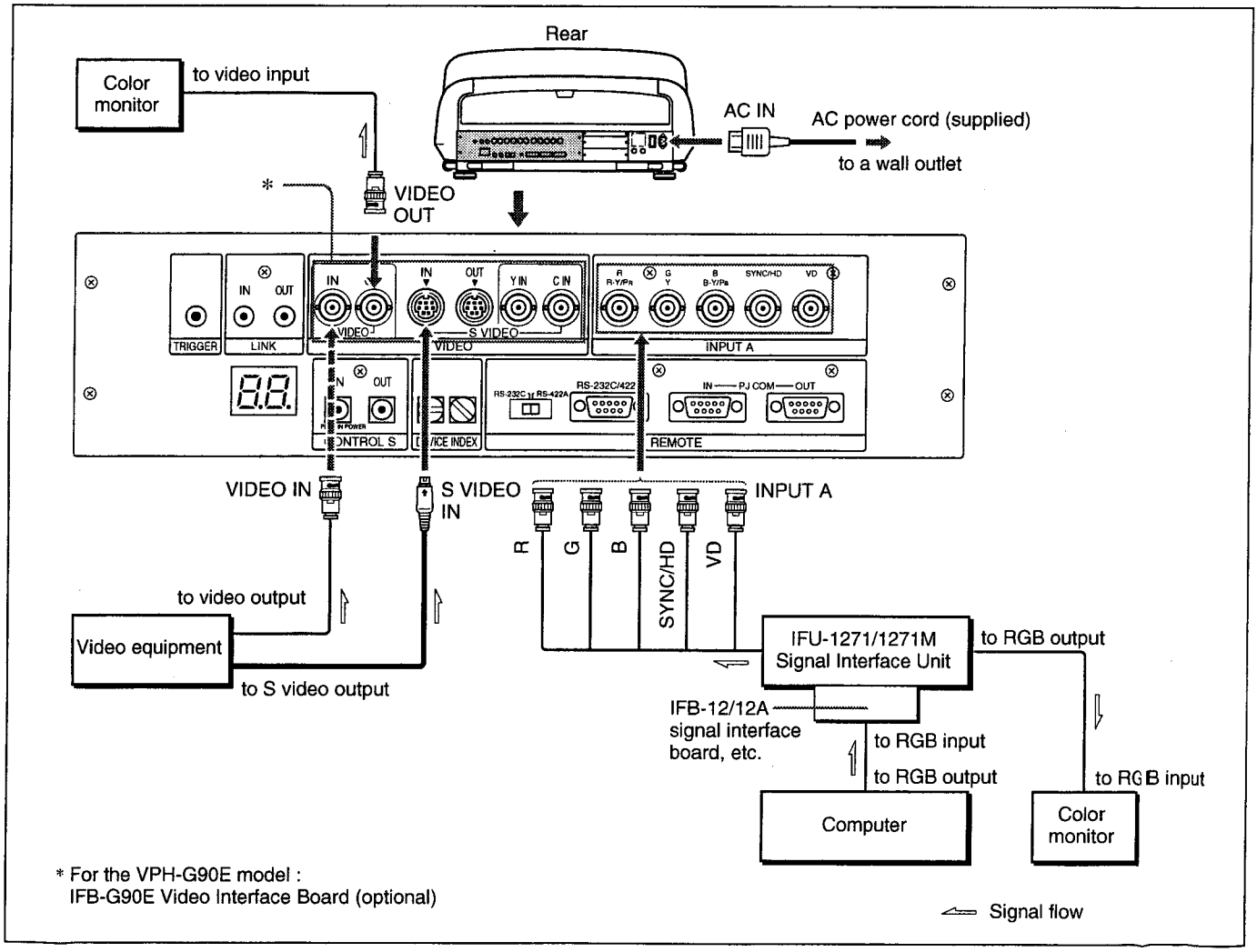
- Before connecting any cables, make sure that each piece of equipment to be connected is turned off.
- Use cables appropriate for the equipment to be connected.
- A loose connection may cause hum or noise.
- When disconnecting a cable, pull it out from the plug; not the cable itself.
- Also refer to the instruction manual of the equipment to be connected.

### Connecting a BNC connector:




## Connecting Directly to the Projector

Use the IFU-1271/1271M Signal Interface Unit.

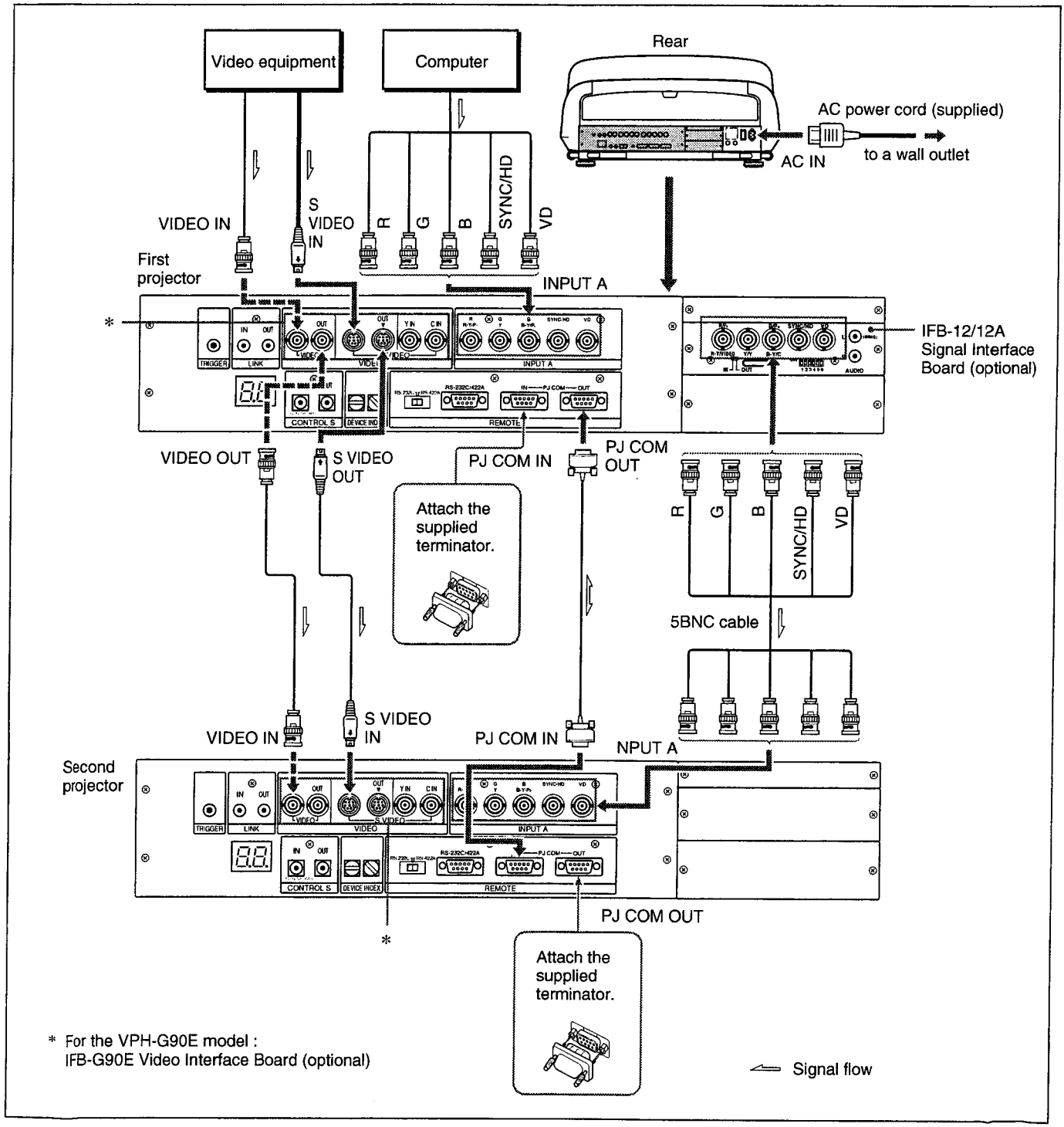



### Setting up

- Set INPUT A in the SET SETTING 1 menu *(page 38)* to RGB.
- Select VIDEO or S VIDEO by pressing the INPUT SELECT keys on the remote commander.

## Connecting Multiple Projectors

This is an example to connect multiple projectors directly using the PJ COM interface.
Install the optional IFB-12/12A Signal Interface Board to the INPUT B section of the projector.




*(continued)*

**Note**

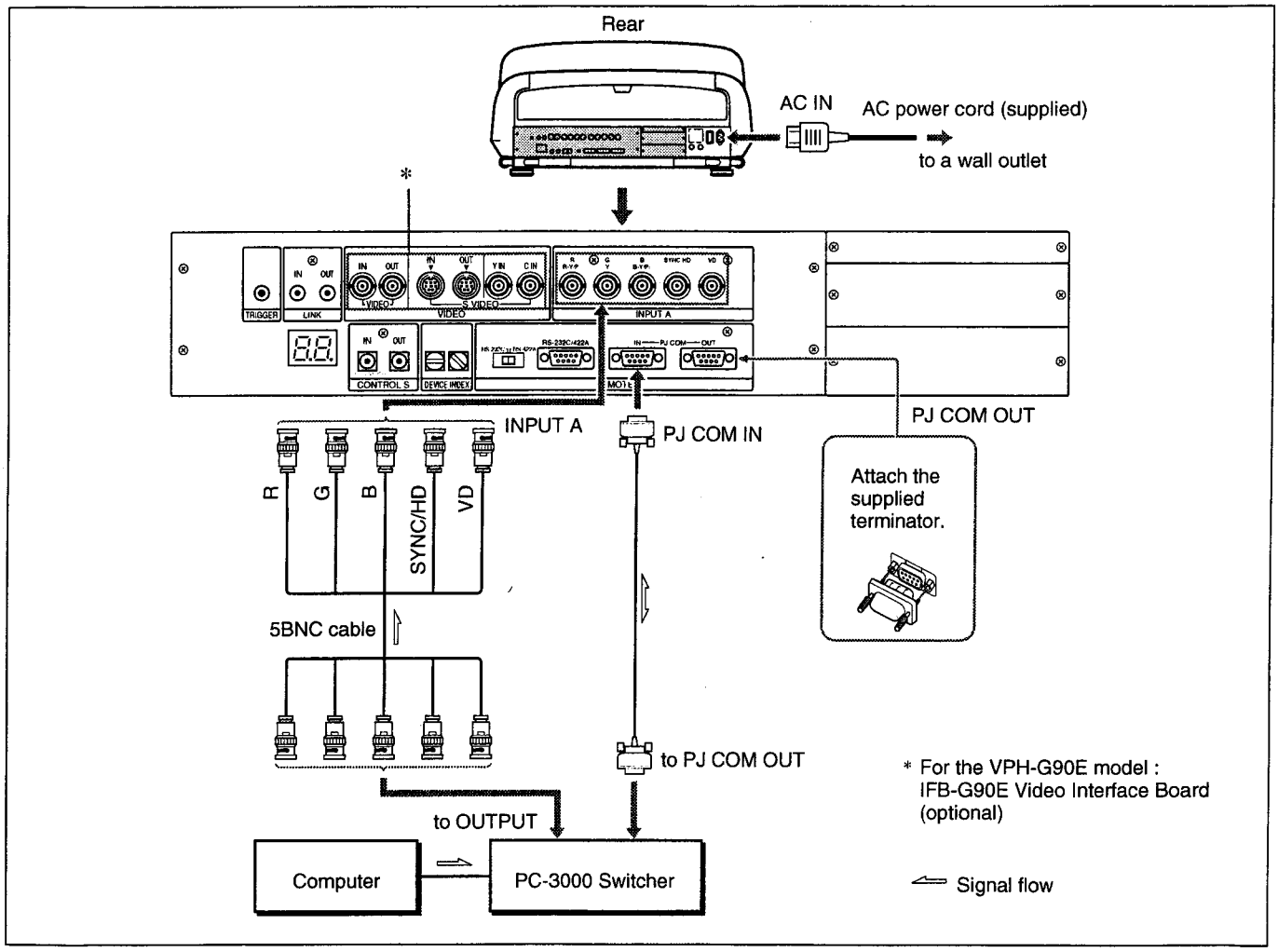
Be sure to terminate the PJ COM IN or OUT connector not in use by attaching the supplied terminator.

### Setting up

- Set the IN/OUT selector on the IFB-12/12A to OUT (output). The signal input to INPUT A is output from the IFB-12/12A.
- Set the device index number of the first projector which is connected directly to the video equipment or computer to "01," and the second projector to "02"*(page 52)*.
- When using the remote commander as a wireless remote control, activate the remote control detector of a piece of the equipment in the system only and deactivate those of the other equipment. Perform the setting on the projector using "SIRCS RECEIVER" in the SET SETTING 2 menu *(page 40)*.

## Using the PC-3000 Signal Interface Switcher

When you connect the PC-3000 Signal Interfrace Switcher (not supplied) to the INPUT A section, you can connect easily various input sources and switch them by pressing the SWITCHER/VIDEO MEMORY/INDEX keys on the remote commander.




**Note**

Be sure to terminate the PJ COM IN or OUT connector not in use by attaching the supplied terminator.

### Setting up

- Set the device index number of the projector to "01" *(page 52).*
- Set the switcher number to "1"on the switcher.
  *For setting, refer to the Operating Instructions of the switcher.*
- When using the remote commander as a wireless remote control, activate the remote control detector of a piece of the equipment in the system only and deactivate those of the other equipment. Perform the setting on the projector using "SIRCS RECEIVER" in the SET SETTING 2 menu *(page 40).*
  *For setting on the switcher, refer to the Operating Instructions of the switcher.*

## Confirming the System Construction

After all the connections are complete, confirm that equipment of the system is properly setup.

1 Connect the AC power cords of all equipment to the AC outlets.

2 Press the SYS SET key on the remote commander or the control panel. Information on the system construction and the settings of the interface boards, etc. are automatically confirmed. Then the message disappears.

**Note**

When you want to use the projector without connecting the switcher after using the switcher in the system connections, it is necessary to confirm the system construction again by pressing the SYS SET key after all the connections are complete. If you press the key, "Master Switcher not exit" appears, but the system construction is automatically recognized.

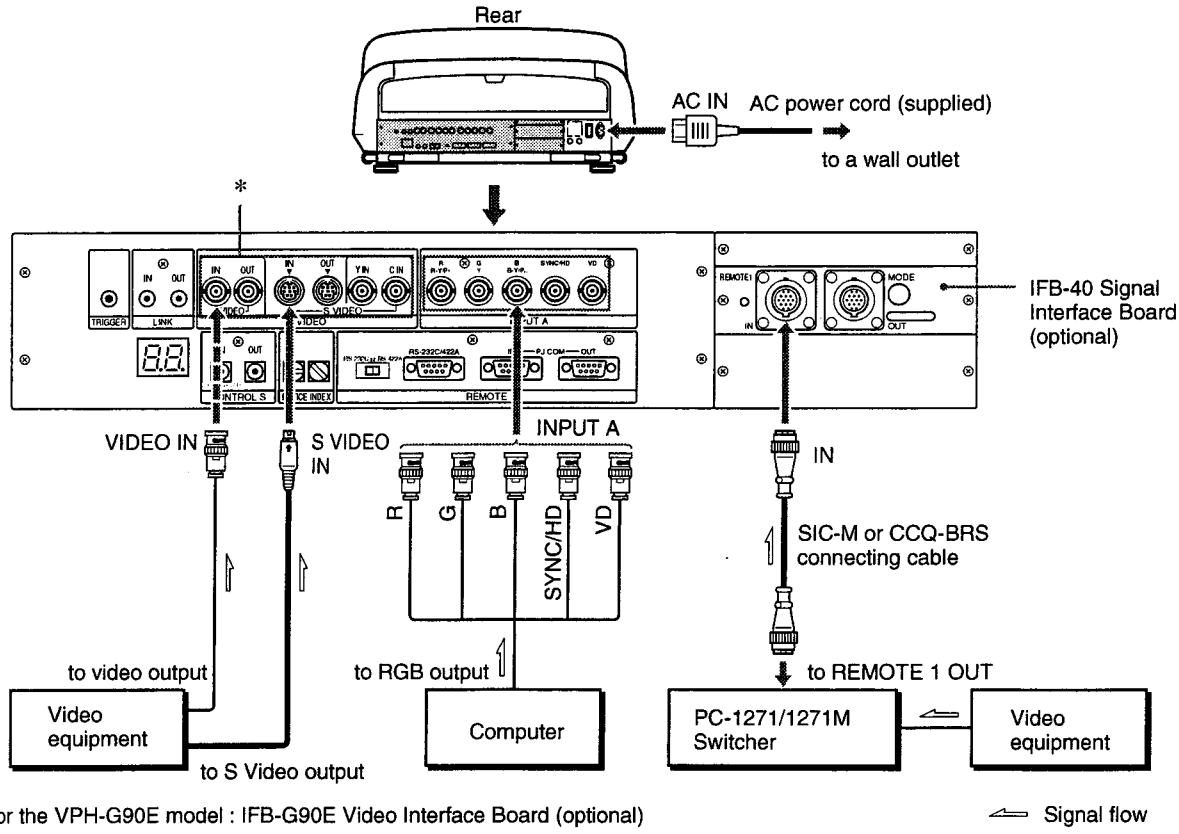
### When a system error is detected

The following messages are displayed on the screen.

| Message | Remedy |
|---|---|
| Master Switcher not exist. | Set the switcher that outputs the signal to the projector to number 1. |
| Same DEVICE INDEX for Projector detected. | Change either number of the projectors that have the same number. |
| Same DEVICE INDEX for Switcher detected. | Change either number of the switchers that have the same number. |

## Using the PC-1271/1271M Signal Interface Switcher

When you install the optional IFB-40 Signal Interface Board to the projector and connect the PC-1271/1271M Signal Interface Switcher to the IFB-40, you can connect easily various input sources.
You can select the input to the switcher easily by pressing the SWITCHER/VIDEO MEMORY/INDEX keys on the remote commander.




Choose the appropriate cable from the following table.

| 1 m | 2 m | 5 m | 10 m | 15 m | 25 m | 50 m |
|---|---|---|---|---|---|---|
| — | CCQ-2BRS | CCQ-5BRS | CCQ-10BRS | — | CCQ-25BRS | CCQ-50BRS |
| SIC-M-1 | — | SIC-M-5 | — | SIC-M-15 | SIC-M-25 | SIC-M-50 |

**Notes**

- Insert the female and male plugs of the SIC-M or CCQ-BRS cable correctly.
- You can extend the SIC-M or CCQ-BRS cable up to 50 m.
- The video signal input to the IFB-40 installed to the INPUT B section should not exceed 70 MHz. When projecting the video signal which exceeds 70 MHz, connect the signal source to the INPUT A connectors using the 5BNC cables.

### Setting up

- Set INPUT-A in the SET SETTING 1 menu *(page 38)* to RGB.
- Select VIDEO or S VIDEO by pressing the INPUT SELECT keys on the remote commander.
- Set the SINGLE/SECOND/OTHER select switch on the switcher to SINGLE.

# Setting the Index Numbers

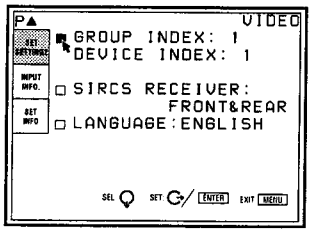
When you connect multiple projectors in your system, you have to set the group index and device index numbers for each projector.

## To set the group index number

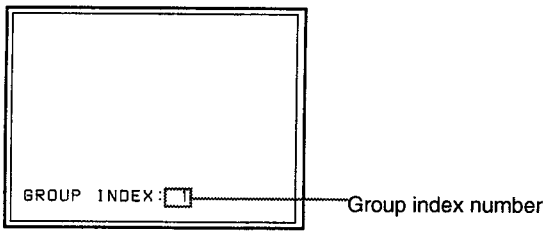
If you set the same group index number to multiple projectors and switchers, you can operate them simultaneously, for example, to select the input, by designating the group index number.

**1** Set the projector to the pro-user mode.
*For details, see "Menu Modes" on page 30.*

**2** Display the SET SETTING 2 menu, select GROUP INDEX by pressing the ↓ or ↑ key, and press the ENTER key.



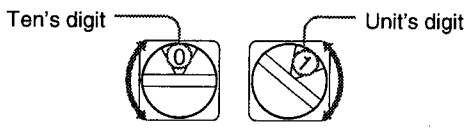

**3** Set a group index number 1 to 99 by pressing the ← or → key, then press the ENTER key.




**4** Press the MENU key to exit the menu mode.

## To set the device index number

If you set the device index number, you can control each projector individually with the supplied remote commander.
Set the device index number with the DEVICE INDEX switches on the rear of the projector. Device index number "01" is set at the factory. Do not change from "01" if the projector is used alone.

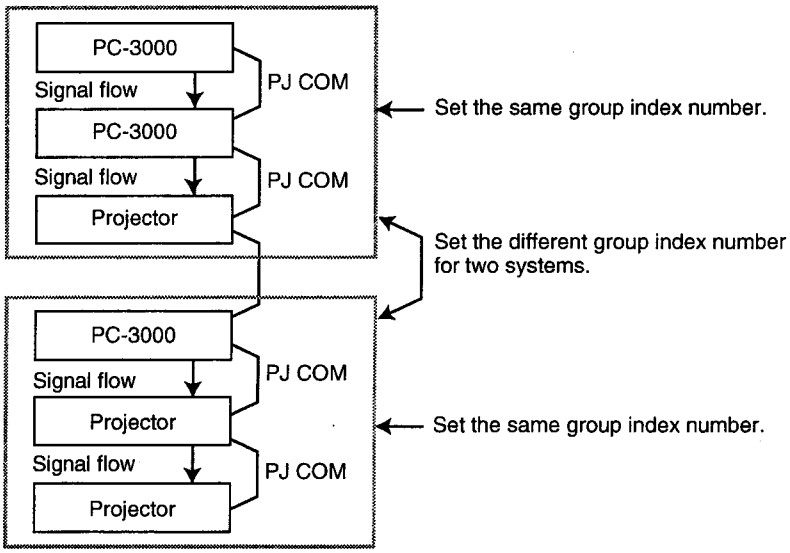


**Notes**

- Do not set the same device index number on multiple projectors in the same system.
- Do not set the device index number to "00." If you do, the projector will be operated only with the keys on the control panel. It cannot be controlled with the wired or wireless Remote Commander, or with an external equipment via the PJ COM connector.

### Notes on setting of the index number

- **Set the same group index number for all equipment of the same system connection (those on the signal route between the signal source and the projector).**

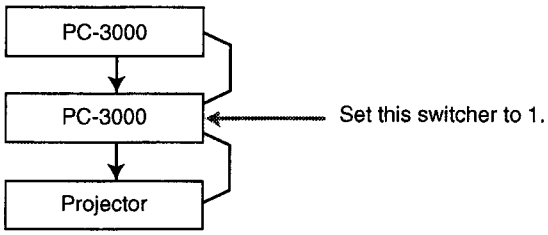



- **Set the correct group and device index numbers and the switcher number.**

  Do not set the same device index number or the same switcher number in one group.

  For example, if there are different pieces of equipment with the switcher number 1, the error message will appear when the SYS SET key is pressed.

- **Set the switcher that outputs the signal to the projector to number 1.**

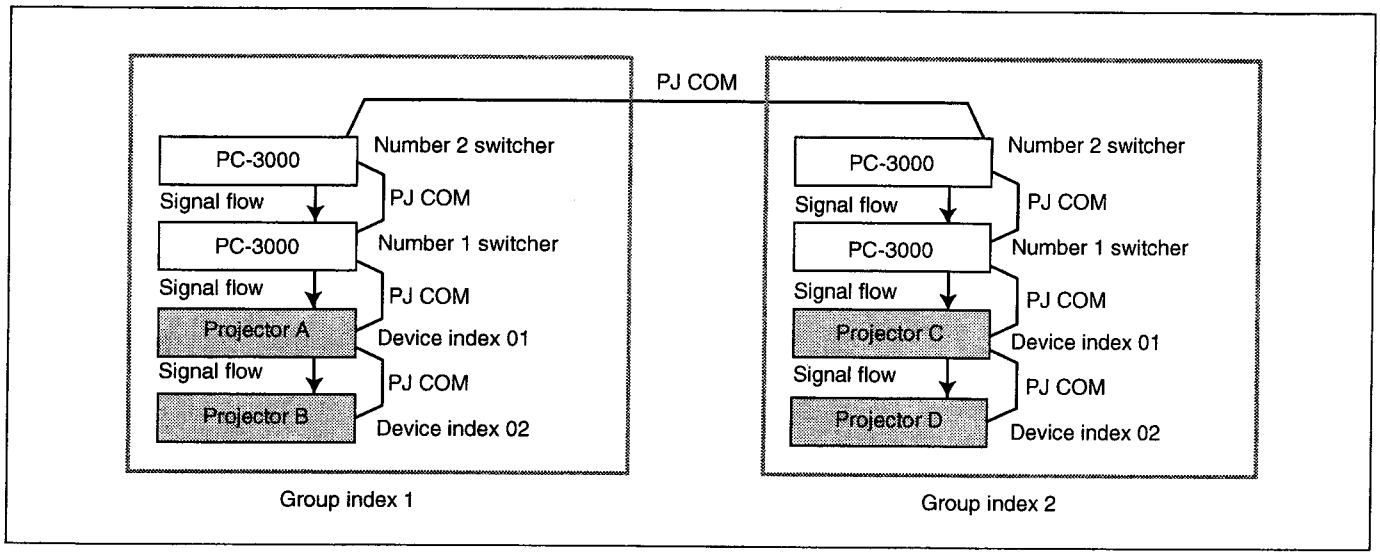



### Notes on connections when two or more switchers are used

- **Mount the IFB-12/12A interface board to the slot 1 of the number (n) switcher and connect the output connector of the number (n+1) switcher to the IFB-12/12A.**
- **You can attach the IFB-12/12A signal interface board (when the IN/OUT switch is set to OUT) only to the number 1 switcher.**

## To select the projector by designating the index numbers

When the switchers and projectors are connected as illustrated, select the desired projector by pressing the keys on the remote commander as shown below.




**Example:**

To select all the projectors
GROUP → ALL → ENTER → ALL → ENTER
Projectors A, B, C and D are selected.

To select projectors with device index 01 from all the groups
GROUP → ALL → ENTER → 1 → ENTER
Projectors A and C are selected.

To select a projector with device index 01 from group index 2
GROUP → 2 → ENTER → 1 → ENTER
Projector C is selected.

To select all the projectors from group index 2
GROUP → 2 → ENTER → ALL → ENTER
Projectors C and D are selected.

**Notes**

- Set the group index and device index numbers correctly. If more than two projectors are set to the same group index and device index numbers, an error message will be displayed when the SYS SET key is pressed.
- If the group index is a tens digit number, press the GROUP key before each press of the number key.

**Example:**

To select a projector with device index 13 of group index 12
GROUP → 1 → GROUP → 2 → ENTER → 1 → 3 → ENTER

# Maintenance / Other

## Troubleshooting

If the projector appears to be operating erratically, try to diagnose and correct the problem using the following guide. If the problem still persists, consult with qualified Sony personnel.

| Symptom | Cause | Remedy |
|---|---|---|
| The power does not turn on. | The MAIN POWER switch is turned off. | Press the MAIN POWER switch on the projector *(see page 21).* |
| The power turns on and immediately turns off. | There may be an internal problem. | Check the error code in the LED display window on the rear of the projector and consult with qualified personnel. |
| Picture does not appear. | The picture is cut off. | Press the MUTING PIC key *(see page 23).* |
| | If no menu appears, external signal and/ or sync is not input correctly. | Check the input signal and sync in the INPUT INFO menu and connect them correctly *(see page 41).* |
| | If menu appears with no input, sync connection is not correct. | Check SYNC SEL in the INPUT SETTING menu and connect the sync correctly, if necessary *(see page 37).* |
| | If no menu appears with no input, there may be an internal problem. | Consult with qualified personnel. |
| Picture is too dark. | Contrast is set to minimum. | Adjust the contrast with the CONTR + key *(see page 24).* |
| | Clamp setting is not correct. | Change the clamp setting in the INPUT SETTING menu *(see page 36).* |
| Picture is distorted. | The input signal is not selected correctly. | Select a correct signal in the INPUT A, INPUT B or INPUT C option in the SET SETTING 1 menu *(see page 38).* |
| On-screen displays do not appear. | The on-screen displays are turned off. | Press the STATUS OFF key *(see page 23).* |
| The projector does not operate with the remote commander. | The device index number is set to "00." | Set the DEVICE INDEX switches on the projector to a number other than "00" *(see page 52).* |
| INPUT A cannot be selected. | INPUT A is in switcher mode. | Press the SYS SET key *(see page 50).* |
| INPUT B cannot be selected. | The IFB-12/12A interface board installed to INPUT B is in OUT mode. | Set the IN/OUT selector on the IFB-12/12A to IN. |

# Specifications

## Optical characteristics

Projection system
3 picture tubes, 3 lenses, horizontal inline system

Picture tube
9-inch high luminance, electromagnetic focus tubes, with coolant sealed

Projection lens
HACC (High-resolution Aspherical and Color Corrected) multicoating lenses

Projected picture size
Factory-adjusted to 120 inches (diagonal measure)
Range: 90 to 300 inches (diagonal measure) adjustable

Light output
ANSI lumen [1] (color temperature: 6500°K)
350 lm (fH: 150 kHz, fV: 50 Hz)
280 lm (fH: 15 kHz, fV: 60 Hz)
Peak white: 1300 lm
All white: 500 lm

## Electrical characteristics

Color system
NTSC, PAL, SECAM, NTSC4.43, and PAL-M switched automatically

Resolution
700 TV lines (video input)
1100 TV lines (HDTV input)
2500 × 2000 pixels (RGB input at fH: 102 kHz, fV: 50 Hz)

RGB inputs
Horizontal frequency: 15 kHz to 150 kHz
Vertical frequency: 38 Hz to 150 Hz

Test signal
Various test pattern generators incorporated

## Input/Output

VIDEO (VPH-G90U/G90M only)
VIDEO IN: BNC type (1)
Composite video input, 1 Vp-p ± 2 dB, sync negative, 75 ohms terminated
VIDEO OUT: BNC type (1)
Loop-through output of VIDEO IN

S VIDEO (VPH-G90U/G90M only)
Y IN: BNC type (1)
Luminance signal, 1 Vp-p ± 2 dB, sync negative, 75 ohms terminated
C IN: BNC type (1)
Chrominance signal, 1 Vp-p ± 2 dB, sync negative, 75 ohms terminated
S VIDEO IN: 4-pin mini-DIN (1)
Y (luminance) signal: 1 Vp-p ± 2 dB, sync negative, 75 ohms terminated
C (luminance) signal: 0.286 Vp-p ± 2 dB, 75 ohms terminated (NTSC)
0.3 Vp-p ± 2 dB, 75 ohms terminated (PAL)
S VIDEO OUT: 4-pin mini-DIN (1)
Loop-through output of S VIDEO IN

INPUT A
BNC type (5)
Analog RGB/Component:
R/R-Y: 0.7 Vp-p ± 2 dB, 75 ohms terminated, positive
G: 0.7 Vp-p ± 2 dB, 75 ohms terminated, positive
G with sync/Y: 1 Vp-p ± 2 dB, 75 ohms terminated, sync negative
B/B-Y: 0.7 Vp-p ± 2 dB, 75 ohms terminated, positive
SYNC/HD: Composite sync: 0.6–8 Vp-p high impedance, sync positive/negative
Vertical sync width: wider than horizontal scanning interval (2H)
VD:Vertical sync: 0.6–8 Vp-p high impedance, sync positive/negative
Vertical sync width: Wider than horizontal scanning interval (2H)

1) ANSI lumen is a measuring method of American National Standard IT 7.215.

| | |
|---|---|
| | HDTV $Y/P_B/P_R$:<br>Y: 1 Vp-p ± 2 dB, 75 ohms terminated,<br>Tri-level sync: ±0.3 Vp-p, Bi-level sync: 0.3 Vp-p<br>$P_B/P_R$: 0.35 Vp-p ± 2 dB, 75 ohms terminated<br>HDTV GBR:<br>G with sync: 1 Vp-p ± 2 dB, 75 ohms terminated,<br>Tri-level sync: ±0.3 Vp-p, Bi-level sync: 0.3 Vp-p<br>B/R: 0.7 Vp-p ± 2 dB, 75 ohms terminated |
| CONTROL S | IN/PLUG IN POWER:<br>stereo minijack type (1)<br>5 Vp-p, plug in power, DC 5 V maximum output 60 mA<br>OUT: stereo minijack type (1)<br>loop-through output of CONTROL S IN |
| TRIGGER | Minijack type (1)<br>POWER ON: DC 12 V, output impedance 4.7 kilohms<br>POWER OFF: 0 V |
| LINK | IN: minijack (1)<br>OUT: minijack (1) |
| RS-232C/422A | D-sub 9-pin type (1) |
| PJ COM | D-sub 9-pin type (2) |

## General

| | |
|---|---|
| Dimensions | 750 × 385.5 × 1,066 mm (29 17/32 × 15 3/16 × 41 31/32 inches) (w/h/d) |
| Mass | Approx. 110 kg (242 lb 8 oz) |
| Power requirements | VPH-G90U: AC 120 V; 9 A, 50/60 Hz<br>VPH-G90E/G90M: AC 220-240 V; 5 A, 50/60 Hz |
| Power consumption | VPH-G90U: Max. 1,050 W (Standby mode: 14 W)<br>VPH-G90E/G90M: Max. 1,000 W (Standby mode: 14 W) |
| Operating temperature | 0°C to 40°C (32°F to 104°F) |
| Operating humidity | 35% to 85% (no condensation) |
| Storage temperature | –20°C to 60°C (–4°F to 140°F) |
| Storage humidity | 10% to 90% |
| Supplied Accessories | Remote control RM-PJ1001 (1)<br>R6 (size AA) batteries (3)<br>Remote control cable (15 m (49.5 feet) long) (1)<br>AC Power cord (1)<br>Lens cap (3)<br>PJ COM terminator (1)<br>Operating Instructions (1) |
| Acquired safety regulations | VPH-G90U:<br>UL1950, CSA No.950<br>FCC Class A, IC Class A<br>DHHS, DNHW<br>VPH-G90E/G90M:<br>TÜV (EN60950), PTB<br>CE-Marking, C-Tick Mark |

## Optional accessories

Signal Interface Switcher PC-3000
Signal Interface Unit IFU-1271/1271M
Projector Suspension Support PSS-90
Interface Board IFB-12/12A/20/21/40/50/1000/G90E
Signal Interface Cable
SIC-10/20A/20B/20C/21/22/23/24/24A/24B/25/26/26A
HD D-sub 15-pin to 5 BNC cable SMF-400
HD D-sub 15-pin to HD D-sub 15-pin cable SMF-401
9-pin remote cable for RS-232C/422A
RCC-5G/10G/30G
Screen
VPS-100FH (100" flat)
VPS-120FH (120" flat)
VPS-100FM (100" flat, powered)
VPS-120FM (120" flat, powered)

Some items may not be available in certain areas. For details, please consult your nearest Sony office.

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